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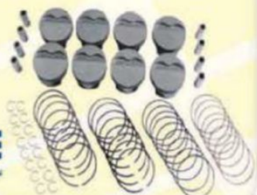
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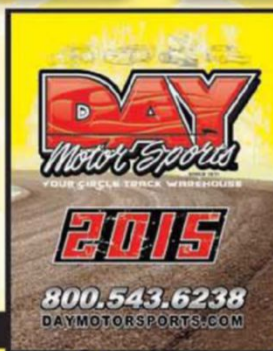
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TURN FIVE

BY ROB FISHER

A Lot Going On

FROM THE
NEW SERIES TO
THE NEW GUY,
THERE'S A LOT
GOING ON AT
CIRCLE TRACK
THESE DAYS

This issue of *Circle Track* is pretty indicative of what is going on with the magazine these days, and it's a lot! Of course there is the normal compliment of great tech, such as Bob Bolles' in-depth look at the history of stock car safety or Todd Ridgeway's look at the cars of the Modified Lite STARS series, an interesting $\frac{5}{8}$ scale alternative to traditional oval track racing. But I must admit the one article that I am really excited about is the

Great American Engine Build.

As you might guess this engine build has everything to do with our groundbreaking Great American Racing Series, as the motor is being built to the rule book and designed to be competitive at each of the six tracks that G.A.R.S. will visit in 2015. We dubbed it the world's most versatile oval track engine and there was, in our view, a very good reason for that.

The spirit of the Great American Racing Series was to design a touring race series for a true grassroots division (Street Stocks) and pay big money purses throughout the entire field. We

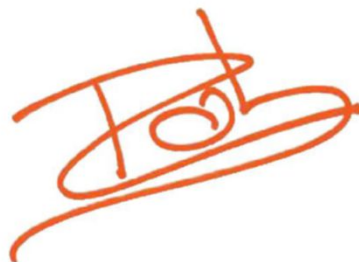
wanted something truly unique so we opted to mix it up a little with a combination of both dirt and paved tracks. On the paved side we made our first stop at Salem Speedway, the half-mile high-banked, notorious track in middle Indiana. Then it is up to Illiana Motor Speedway, another half-miler, but this one is much flatter than Salem. Kentucky Motor Speedway in Whitesville, Kentucky, is next up on the list. This track is a $\frac{3}{8}$ -mile paved facility. Indiana's Plymouth Speedway is also a $\frac{3}{8}$ -mile track but Plymouth is dirt and a whole other animal! To put a huge exclamation point on the series finale, we created a championship weekend built around a

Saturday night race and a Sunday afternoon race. This doubleheader weekend consists of a race on the brand-new $\frac{3}{10}$ -mile dirt track at Memphis International Raceway followed the next day by a race at the $\frac{3}{4}$ -mile paved facility right next store.

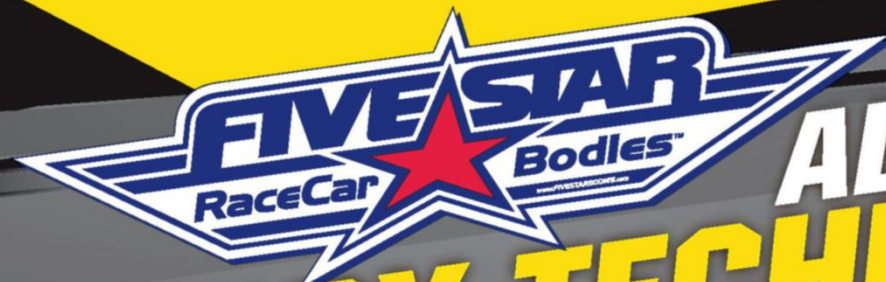
No two tracks are the same and that is going to put a premium not only on driver skill, but on equipment prep as well. And that's where we expect this engine build to shine. Did we happen to mention that Ison Racing Engines is building the motor? Ison has a wealth of experience building race motors for a wide variety of applications, not just oval track ... so we are expecting great things from this engine. Speaking of the Great American Racing Series, you can read all about the first race at Salem Speedway, which was won by a guy who is no stranger to this magazine.

Finally, I am excited to introduce the newest addition to the *Circle Track* team, Matt Panure. Matt joins us as the editor while yours truly moves into the role of Editor-in-Chief/General Manager. Matt comes to us with a long history in short track racing, despite his young age. But I'll let him tell you his story. His new column will appear every month and can be found right between mine and Bob Bolles' Track Tech Q&A. I'm really not going anywhere, we're just beefing up the *CT* team so that we can continue to bring you the very best in oval track racing technology articles and remain your #1 Source for Advanced Racing Technology.

Until next time, go fast and turn left. 




The Great American Engine Build gets underway at Ison Racing Engines in Ohio.



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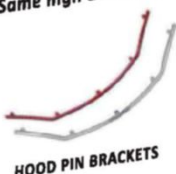
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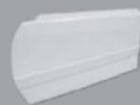


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OFF THE MIC

BY MATT PANURE

Everything happens for a Reason...

HOW DID THAT KID SNEAKING INTO THE PITS AT WISCONSIN RACE TRACKS BECOME EDITOR OF *CIRCLE TRACK*?

It has become a common scene at your local short track—the young racer, the young crewmember, the racers' kids roaming through the pits, only 10-15 years ago these young kids had to lie about their age, or hide from the dreaded pit gate overseer to make it into the pits. I know, because I was that kid.

From there my story veers in an odd direction. I wasn't sneaking into the pits to race, to work

on a car, or even to watch everything that was happening. I was sneaking into the pits to help my dad inspect cars. Let's face it, it's easier for a 14-year-old to slide under a car with a magnet to check fuel cell plates and tail clips. Unfortunately, I don't move quite as quickly now as I did then.

There was a time shortly after I started sneaking into pit areas that I got a hold of my dad's radio and listened in on the chatter of those choreographing the day's events. Then and there I felt like I had a place at the track. While most kids at the track were hoping to get into a race car, I was ready to jump into the official's role. (What was I thinking?!)

Not long after I got my first taste of tech inspecting I was hooked at the racetrack. When I was 16 my dad and I worked on Saturday nights at a dirt track in Shawano, Wisconsin (where I operated the scoreboard and drank more Sun Drop than I should have), and the famed Slinger Speedway on Sunday nights. Although I didn't have an official role at Slinger, I jumped into helping tech. Most of my time was spent stamping tires—again, great work for a young, aspiring official.

In many aspects, Slinger became my classroom and I was given more responsibility. As time progressed I did my best to keep my eyes,

ears, and mind open to see what I could figure out about this crazy sport we all love so much. Thankfully, there were many good people around to observe.


Just as I started to get comfortable in a role of tech inspector (and later pit steward) I received an opportunity to work with veteran short track announcer Joe Verdegan, who was looking for some support. Just weeks before high school graduation I announced my first race at Luxemburg Speedway. With limited dirt experience and no knowledge of the racer base, it took a while for me to find my groove.

Eventually I did become comfortable enough behind a microphone to seek new adventures. When Doug and Julie Strasburg purchased the Mid-American Stock Car Series my dad planned to join as the tech inspector. Jokingly, I told him to ask if they wanted to hire a traveling announcer and PR person. They were open to the idea and suddenly it was time to start applying all of the lessons I had learned at Slinger, Luxemburg, and everywhere in between.

Just as it had in the past, one opportunity led to another. Before I knew it, I was 22 years old, on the microphone at Oktoberfest Race Weekend calling the Midwest Tour's season finale. The next season I became the Tour's traveling announcer and picked up duties at Wisconsin International Raceway on Thursday Nights. It all happened in a blur, but again, I was sure to absorb as much as I could.

Traveling from track to track and taking lessons from the surroundings paid off with a fulltime job in marketing at Dells Raceway Park (DRP). I arrived after a season where DRP had to cut Super Late Model racing to save weekly costs. They say everything happens for a reason, and you may be able to tell that I'm a firm believer.

In the offseason before my first year at DRP we worked closely with Super Late Model teams to build a plan to help both the track and the racer financially. What eventually came about was what is now known as the TUNDRA Super Late Model Series. To this date myself, Tom Lichtfeld, and Frank Kreyer continue to fuel our passion (and add some gray hair) by promoting the series.

So that's where my story hits a new chapter. My ties in TUNDRA introduced me to Rob Fisher, and an opportunity to join *Circle Track*—an opportunity I could not deny. Once again it's time to take everything I've learned in racing and apply it as I write the next chapter. I'll be sure to continue to keep my eyes, ears, and mind open, and continue to learn from all of the great people in this sport who surround me. 

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EDITORIAL

Network Director | Douglas R. Glad

Editor-in-Chief | Rob Fisher

RFisher@enthusiastnetwork.com

Editor | Matt Panure

MPanure@enthusiastnetwork.com

Senior Technical Editor | Bob Bolles

chassisrd@aol.com

Managing Editor | Sarah Gonzales

CONTRIBUTING WRITERS

Jessica Collins, Stephanie Davies, Vahok Hill, Bill Holder, Jeff Huneycutt, Dennis Huth, Will Kimmel, Jim McFarland, Todd Ridgeway, Ernie Saxton, Ramey Womer, Dalton Zehr

CONTRIBUTING PHOTOGRAPHERS

Shawn Crose, Stephanie Davies, Vahok Hill, Jeff Huneycutt, Jim Jones, Will Kimmel, Todd Ridgeway, Rick Schwallie, Jean-Marie Strickland, Dalton Zehr

ART DIRECTION & DESIGN

Design Director | Rob Munoz

Art Director | Tris Mast

ON THE WEB

www.circletrack.com

www.stockcarracing.com

MANUFACTURING & PRODUCTION OPERATIONS

VP, Manufacturing & Ad Operations | Greg Parnell

Senior Director, Ad Operations | Pauline Atwood

Archivist | Thomas Voehringer

SUBSCRIBER SERVICES

Subscription rates in the U.S. and possessions: 12 issues for \$18. Canada \$30. All other countries \$42 (for surface mail postage). Payment in advance, U.S. funds only. For subscription assistance, or address changes, please call 800/800-6825, or 386/447-6385 or (international), email: circletrack@enthusiastnetwork.com, or write to: Circle Track, P.O. Box 420235, Palm Coast, FL 32142-0235. Please include name, address, and phone number on any inquiries.

Unsolicited submissions are welcomed, but Circle Track is not responsible for loss or damage of contents. Send all submissions to Circle Track, 1821 E. Dyer Rd., Ste. 150, Santa Ana, CA 92705. All submissions must be accompanied by SASE.

Canada Post: Return undeliverable Canadian addresses to IMEX Global Solutions, P.O. Box 25542, London, ON N6C 6B2.

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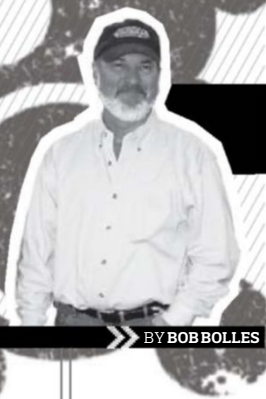


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BY BOB BOLLES

TRACK TECH Q&A

Winning is Fun

AND LOSING IS NOT FUN

It is every team's ultimate goal.

It is the dream we all dream when we start out in this sport. Winning a race and standing in victory circle is very rewarding. If it is your first time, everyone is happy, including some of your

competitors who are friends. But let it happen too often and those friends may likely turn bitter.

The phrase "it's lonely at the top" is no more apropos than in racing. Teams who win on a consistent basis are loathed by all of their competitors and even by the track management for stinking up the show. We were told by a track official once that on a particular night, after we had finished Second to a dominant team for three weeks in a row, they were not going to check carburetors after the race. You know what that meant.

I suggest that rather than despise a team for

their success, try to find out why they are so successful. Analyze the way they go about their duties. With a winning team, every task is usually refined, the team almost never changes springs or shocks, they have already found the right combination, and they rarely have parts failures.

And then there is the concept of winning when you don't come in First. New teams should set goals, such as finishing the race. That would be win number one. Then set a new goal to finish in the top ten. There is win number two. Then finish in the top five, top three, and eventually First Place. You could have team trophies made up for each "win."

We preach constantly about making sure your alignment is correct, and that the setup is balanced, and all four tires are working the best they can. We show you how to do that in detailed articles, ones that go much farther than any others in this industry.

Maybe, just maybe, that successful team has followed the rules of setup and done their homework. Maybe it's time to do yours if you find yourself behind. Success in any endeavor takes a lot of working smart. You can do that. A famous movie quote by Anthony Hopkins from *The Edge* goes, "What one man can do, another man can."

The driver has learned how to lead the race



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and keep everyone behind and how to work traffic. If the driving style of the winning car is a little different, maybe it is time to conform. Whatever it is, try to improve your team's routines and preparation.

If you strongly suspect the winning team is cheating, protest. If they have the nerve to cheat, then you should have the guts to protest. If they are legal, everyone will be happy. If they are not, you and the rest of the field will be happy.

So, all of the tools to get the job done are here in *CT* for you to read and re-read. And as technology advances, we will be updating what we present. And, we will try to keep it simple enough so that you can understand and apply the knowledge to your car.

The reason we go so far in our writing is so that you will know exactly how to do what we profess should be done. We don't just say "hey, you need to do this" and then not explain how to do it, or give you some idea about what it should be in the first place.

I am a longtime follower of racing magazine tech articles going back many decades. I have strong opinions about valueless articles that never give out any specific information. Granted they are very safe for the writer, but do little to advance your racing knowledge.

So, when I got the chance to write for this magazine many years ago, I decided I would put it all out there. If maybe I got something wrong, it would be corrected and life goes on. We all make mistakes and some of the technology I write about might be the wrong way to approach a complicated subject, but as we will see, the end results keep coming up the same, mostly because what we preach we have seen firsthand work. We love to help you make it work for you.

If you have comments or questions about this or anything racing related, send them to my email address: chassisrd@aol.com, or mail can be sent to *Circle Track*, Senior Tech Editor, 1821 East Dyer Road, Suite 150, Santa Ana, CA 92705.

Tomatoes Comments

I read your recent article "Tomatoes and Tomatoes" in the July edition of *CT*. I agree totally with you that it is not possible to change the loading of one tire without affecting the other three. The basic principles of Newtonian mechanics cannot be overcome by opinion.

The principle involved here is that the sum of the forces and moments must equal zero. For simplicity, consider a condition for a flat corner with no banking or off camber, then the sum of the four tire vertical loads must equal the vehicle weight. If a suspension change affects one of the tire loads, then that by definition must affect the other three. Perusing my copy of Milliken's *Vehicle Dynamics* (1995 SAE reprint version), I read the Sec 17.3, page 614 discussion you referred to on lateral force creating a vertical deflection on the sprung mass and I think I understand that.

The sum of the forces and moments equals

zero principle applies to all six degrees of freedom (three translational, three rotational). That got me to thinking, and I don't recall that I have ever seen one of your articles discuss yaw moments and offsets of CG centrifugal forces versus the center of lateral stiffness as defined by the front and rear tire lateral stiffness. The lateral center of stiffness is defined by the relative stiffness of the front and rear tires. The stiffness is proportional to the tire force versus slip angle. If one assumes that during cornering equal front and rear tire slip angles is the optimum condition, then this would correspond to the center of stiffness location between the tires being equal to the fore-aft location of the vehicle total center of gravity. Deviations from this condition would result in either under-steer (push) or over-steer (loose). For example, if the CG was forward of the lateral center of stiffness location, then a yaw moment is produced which is reacted by a front and rear tire lateral force couple, which increases the lateral load on the front tire. This increases the front tire slip angle and results in an under-steer or push condition. Chapter 5 of the Milliken book has an extensive discussion on this topic.

Now, this is a very simplistic consideration and does not include front tire lateral forces due to steering angle. In addition, when approaching the limits of traction (which is what racing is about) linearity of responses is not the case, as can be clearly seen by the examples of tire load versus slip angle in the Milliken book. However, fundamentals would suggest that it is preferred to have the fore-aft vehicle CG close to the front to rear tire lateral center of stiffness location when approaching the limits of traction.

Maybe this is a secondary consideration, but I don't believe I have seen any of your articles related to this aspect of cornering behavior. I greatly enjoy your articles and any comments and criticism is appreciated.

—**Kelly Block**

Kelly,

Thanks for writing about this very interesting (to some people) subject. There are many ways to look at vehicle dynamics and a great number of opinions. Along with that, there are some divided opinions on how basic vehicle dynamics works, and I am now exploring these basics using a model I created that will definitely give some true answers to many of the questions.

First off, vehicle handling is completely controlled by the loading of the tires and the resulting grip level of the four tires. How loads are distributed under dynamic conditions is what we all strive to understand better.

What determines the basic handling, i.e. over-steer and under-steer, is the level of combined grip of the tires on the same axle compared to the other axle pair, period. The only variable that can add to or take away from grip is tire slip angle. The greater the slip angle, or what would be more appropriate is steering angle, the greater the grip up to a point when the steer angle becomes too great and the tires lose all grip.

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The front, or steered tires, are a variable grip mechanism. If the car over-steers, the steering angle can be relaxed. If the car under-steers, the steering angle can be increased, again up to a point. If you plot a curve over the vehicle where the centerline of the car is at right angles to the radius and the front tires are pointed straight ahead, the rear tires have a natural steer angle toward the inside of the turn. The front tires have a natural steer angle to the outside of the turn and

...it was the best racing when the leader would get involved in a mix-up and have to go to the rear.

must be steered toward the inside of the turn.

If the car were neutral in handling, then the front steering angle from straight ahead would be twice the rear steer angle in order to create a sufficient steer angle, or slip angle, equal to the rear tires.

What we talk about in CT is the grip level created by equally loaded tires front

to rear. If the two pairs of tires are equally loaded, that is, equally un-evenly loaded, then the grip level of the two ends will be the same IF the car weight is 50/50 front to rear. Yes there is a polar moment when the CG is not centrally located, but for most application in stock car racing, the CG is at or very near the center between the axles.

Small variations in CG placement can be compensated by front wheel steering angles, but it is never a good idea to compensate for polar moment influences by making changes to the stiffness at the front or rear once we make equal those stiffnesses.

Remember that there are several combined affects that contribute to a suspension's "stiffness" and only looking at stiffness, or resistance to roll, is not the complete picture and will not yield correct results when trying to balance a vehicle dynamically.

This should be enough to think about for now.

Tire Soaking for Road Racing

Bob,

I've read your book, have your programs, and have being using them at least 12 years. I was reading your article on tire soaking. I'm a road racer, so I don't know much about soaking tires, but I did buy some tire prep (Goat Pee) about a year ago. I put it on my tires that had a qualifying and a 30-minute race on them and went to a track that is hard on tires.

They corded very quickly. I put the same stuff on before an event last weekend, and just put it on the center 6 inches of a 10 inch tire. The track I went to was not hard on tires, and it seemed to make the tires better for several 10-minute practice sessions. I can't make my car handle well on Hoosier tires.

I've been running on Goodyear 2902s for about three years. Since Goodyear has not made these for several years

now, all the 2902s I can buy now have been sitting for quite some time. Is there any particular tire prep that you have come across that you think would help these tires?

Thanks,

Bob Blizzard

Bob,

First off, we don't advocate soaking tires when the rules say you cannot. Our discussion related to using tire treatments for just what you describe, trying to use old tires and make them perform like new ones, not necessarily better than new ones.

What I know is that the amount of time you soak a tire determines how much effect the treatment has. In your case where the tires came apart, you probably over-soaked them. You might try doing less next time.

As far as making Hoosier tires work, here is a bit of information. Hoosier tires normally have softer sidewalls than Goodyears. It's just the way they are made, it does not mean one is any better than the other.

Tires with softer sidewalls will roll over more when a side load is applied as happens when we corner at high g loadings. Your tire likes a certain camber angle in relation to the track and you need to rethink your front camber settings when going from one tire brand to the other.

If your car worked well on Goodyears, then switching to Hoosiers you would need to run more front negative camber to compensate for the tire roll over. In the rear, you might need to run cambered axle tubes, if that is possible. I hope that helps you to understand.

Making for a Better Show

Bob,

Back in my day we equalized the field by doing the following. If you won the last week's feature race you started 12th or farther back in the feature, depending on the size of the field.

We also ran double features and if you won the first one you started last in the second and if you won the second you got more prize money. This plan makes for more passing and that is what the fans want. Starting the fastest car on the pole makes no sense.

—**Clem Zahrobsky**

Clem,

Hey, I agree. When I was younger, and a spectator at Volusia Speedway when it was originally dirt (it has gone from dirt in the '70s to asphalt in the '90s, back to dirt in the '00s), it was the best racing when the leader would get involved in a mix-up and have to go to the rear.

That run to the front took a lot of talent for getting by the slower cars and running down the faster cars. When that driver who had to come from the rear caught up to Second and Third place, also good cars, the sparks flew. That kind of excitement kept me coming back and bringing my friends with me. 🏁



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BY JIM MCFARLAND

ENGINOLOGY

Where there was fire, there was **Smokey**—Part II

OUR OWN JIM MCFARLAND WAS FORTUNATE ENOUGH TO HAVE HAD A CLOSE PERSONAL RELATIONSHIP WITH ONE OF THE WORLD'S MOST RENOWNED ENGINE BUILDERS



Author's note: As mentioned last month, your General Manager/Editor-in-Chief and I decided to take a slight departure from our monthly Enginology format and share a few memorable experiences I had with Smokey, throughout about a 35-year friendship. We'll begin with how I met him and then spike the discussion a bit with some follow-up instances. We hope you will enjoy.

Especially during the mid '60s, brand manufacturer involvement in NASCAR was at an all-time high. Ford and Chrysler were providing various "means of support" that included engineering assistance and purpose-built products, often rough into their traditional parts distribution systems to provide the homologation that made them legal under NASCAR rules. And, believe it or not, some of these parts were "individually" modified for specific teams, if you can imagine such; still goes on today, in some instances.

Just one year before the ruling association introduced body

templates to address aerodynamic modification that were stretch "stock" body dimension to new limits, 1967 became the focal point for a black and gold Chevrolet built to be "almost as stock on the bottom as the top," and reputed to have hosted more rules violations than any such car to that date.

When I arrived at the garage area for the 1967 Daytona 500, clearly the three Ford and Chrysler "factory" teams were in abundance. You could literally stir with a stick the number of engineers and related staff circulating through the area. Qualification had been completed days before and, if memory serves, there were two

"independent" Chevrolets in a veritable sea of Fords and Chryslers. One of these had qualified on the pole, much to the promotional delight of NASCAR, and presumed to be a prime reason for packing the stands on race day in what was being forecasted as a "David and Goliath" on-track encounter. As a matter of fact, the pole Chevrolet was being driven by Curtis Turner and owned by Smokey Unick.

It didn't take long for me to find Smokey. The car was on jackstands with masking tape outlining what appeared to be new fenderwell dimensions. Goodyear had provided Smokey with some "larger tires," different from what he had used to nab the pole, and the car was being modified to accept them ... clearly outside the rules. You can speculate what "larger tires" meant. So amid a surrounding crowd of on-lookers (easily numbering 30 or more), here comes a grizzly NASCAR inspector, clipboard in hand, approaching Smokey, who had his back turned and was facing the car. Two members of his crew, son Smokey Jr. and Ralph Johnson, an ex-Holley engineer working for Smokey at the time, were trimming out the fenderwells.

"Hey, Smokey! You can't modify that car. It's already qualified. That's illegal. I'll have to report this violation and it'll disqualify you," the NASCAR inspector said, still approaching the car. Smokey Jr. and Ralph stopped and looked at Smokey. "Keep cuttin', like I told you," was Smokey's response. The tech, now about 20 feet away, is still talking and warning about a pending disqualification. "Keep cuttin'," comes again from Smokey, still with his back to the approaching inspector.

And then, still back-facing the irritated inspector, he said this: "Why don't you just stop right there, sonny. And then I suggest you turn your ass around and go back through that gate you just opened, leave it open for me, and tell Mr. France his pole car just went home." Graveyards don't get much quieter. Then, there are a couple of snickers. Smokey Jr. and Ralph kept cutting, and Smokey ran the tires.

For the record, this was a time when Chevrolet was having a connecting rod bolt problem in their Mark (big-block) engines. Partway into the race and leading, the engine lost a rod bolt and the car was retired. In the ensuing race at Atlanta, Turner put the car over the wall, scattering sheetmetal, fiberglass bits, and panels. It also put a surviving driver out of competition. I happened to see a couple of Ford engineers carrying away bits of fiberglass as souvenirs of a highly controversial Unick benchmark. Smokey took most of the remaining “scrap” home.

Sometime later, upon learning NASCAR had labeled the car a $15/16$ scale model of a properly dimensioned Chevrolet, Smokey cut a 2-inch section out of the frame, chromed and mounted it on a plaque, and personally delivered it to Bill France Sr. Quoting from the note that accompanied the plaque, it said, “Now it’s the damn scale model you claimed it to be. ...” The balance of the note probably needs to remain unpublished.

Then there was the very first visit I paid to Smokey in his infamous “Best Damn Garage in Town” shop. There was only one entrance to the area, and if you didn’t work for him, you only got in by permission ... Smokey’s permission. All windows were painted black, and if you had any trace of Bow Tie blood in your system, a visit there was like being on hallowed ground.

On this particular visit, it was a hot and muggy Saturday afternoon in July. As we entered the shop, Smokey Jr. (about 10 years old at the time) was push-brooming the floor, cleaning up machining chips and residue from the week’s work. There was a cast on his left arm, elbow to wrist, and he kept brooming as Smokey and I passed by. I can recall the exchange almost word for word. It was that entertaining.

“What happened to your arm?”

“Broke it.”

“What doing?”

“We were playing kill the guy with the ball.”

“You had the ball?”

“Yes sir.”

“Don’t forget to empty the trash.”

We continue into the shop and about 10 feet later, Smokey spies a little “pigtail” of grease on the floor. It appeared to me to have come out of a grease gun. A few feet more, we were passing through an open doorway and there’s another pigtail of grease on the door facing. He stops, looks at it and sees another further up the wall. From there he looks up at yet another glob delicately hanging from the ceiling. So, we’re both now looking at the ceiling he says to Smokey Jr., “You know anything about this?” Push-broom in hand, Smokey Jr. walks over, and now we’re all three looking the ceiling.

“Yes sir.”

“Wanna tell me about it?”

“Well, there was this horsefly in here a while ago.”

“How’s your aim?”

“Not very good.”

“OK, clean it up and don’t fall off the ladder when you go to work on the ceiling.”

Then, as we’re walking into the shop, and almost as if he was talking to himself, Smokey says, “Can’t understand how he missed. There’s a hundred pounds of air behind that damn gun.”


Finally there was the Smokey Ram manifold that Edelbrock brought to market, which was of a cross-ram design. The plenum lid bolted to the runner section below. In fact, Edelbrock had previously offered this style of manifold, particularly for Chrysler engines, so we’d had some experience sorting out cylinder-to-cylinder mixture distribution issues characteristic of this type design.

So I’m at Smokey’s on one of his late-night dyno sessions, Smokey (as he frequently was) is perched on a four-leg wooden stool, smoking his pipe and studying dyno sheets. I’m helping one of his shop employees, who was often with Smokey at the racetrack, bolt a manifold onto a 366-inch small-block. It’s nearing midnight and I’m trying to stay awake. Incidentally, this shop guy never talked to



All windows were painted black, and if you had any trace of Bow Tie blood in your system, a visit there was like being on hallowed ground.

anyone, other than Smokey, and not very much with him. But, I’m about to conk out. So I say, “I see you guys have been running clear Plexiglas tops on some of your prototype Smokey Rams.” Nothing. “We’ve done some of that at Edelbrock too.” Nothing. “I just can’t see Smokey standing over an engine running 7,000 rpm and looking at distribution patterns.” With that the guy straightens up, lays down his wrench, looks me straight on and says, “What the hell makes you think Smokey’s the one in here doing that?” Nuff said.

Smokey was truly one-of-a-kind, and I still miss him today. 

PIT BOARD



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Mopar or No Car!

This is a picture of our new '70 Challenger. This is one fine piece of work. My team and I would like to see it make your (Facebook) page.

—**Chastin Watts**

Chastin,

That is one awesome car! Not only will we share it on our Facebook page but we'll also share it right here in Pit Board. By the way, we'd love to get behind the wheel. Any chance of that?

the auction block and sold to become a housing allotment. About four years ago, with the backing of one of their primary sponsors, Jason and Kristen worked out a deal with the land owner to buy it. Every year since, with their hard work and experience as racers, has brought it back to life. This year they will not only host the normal weekly series but will host several All Star Sprint Series races.

This year is the track's 50th anniversary and I thought it may make one

of the "good stories" about comeback tracks instead of another track becomes a housing development story.

—**John Raber**

*Thanks John,
Sounds like a great story we'll take a look into*

it and you never know you might see it right here in the pages of Circle Track.

Dick Trickle Memorial

Sirs,
I'm not sure I'm contacting the correct person about this, if not please direct me.

I have a couple ideas of things that are certainly worth writing about. You remember Dick Trickle (who doesn't?). My dad, Marv Marzofka and Tom Reffner were two of Dick's biggest competitors back "in the day." They and their friends are constructing a permanent memorial for Dick at Dick's home town of Rudolph, Wisconsin. The main attraction will be a life-size bronze statue of Dick. He will be surrounded by printed slates of his lifetime accomplishments. They are also going to raffle a '15 Mustang GT500 lettered with Trickle's scheme. This is a HUGE undertaking for these guys. They will need to raise at least a couple hundred thousand dollars to cover costs. They are currently raising money through T-shirt and hat sales at racing events, auctioning memorabilia,

and accepting donations. They hope to complete the memorial within three years. Obviously, the money will decide the outcome. This is certainly a big event for many people, a great cause, and worth following through completion.

The second item I feel is worthy of coverage is the Dick Trickle Memorial race at Golden Sands Speedway. It will be held at Golden Sands Speedway (Dick's home track) this Memorial Day. The track is owned by Darrel, Sheila, and Craig Bassuener. Craig has done a great job running the track for years.

Another reason the race is interesting is because of the race format. Five "Draft teams" were chosen draft style at the draft party held on April 18. (Thousands of dollars of proceeds from the party were donated by the Bassueners to the memorial.) Craig will provide four new tires and pit entry for the each of the first 25 drivers entered. Five extra drivers are allowed for backup. The five teams represented are five of the most popular drivers of the old days. They are, Team Trickle, Team Reffner, Team Marzofka, Team Somers, and Team Back. Color-coded T-shirts are available for all teams and fans. The teams are mostly made up of family members of the local legends. The drivers were pre-entered and the list was established before the draft party. The teams were chosen "draft style" at the party. Qualifying order and heat races will be determined by the draft. The drivers will compete as teams. Each driver will compete with the driver in their draft round. Finishing order and pay will be determined by team points. There is also a Fantasy league being set up for the race. It's really kind of cool, and it's a great way to generate new interest in racing.

If you are interested in finding out more about these events, please let me know.

Sincerely,

—**Terry Marzofka**

Terry,

That sounds like a great cause. We'd be happy to promote a website or contact info to help raise some funds. We'll be reaching out to you. 📧

Mr. & Mrs. Late Model

Rob,

I thought you may be interested in a couple called Mr. and Mrs. Late Model. A husband and wife team who both competed in Dirt Late Model Racing. Kristen and Jason Flory gave up racing their late models weekly to become the promoters at Wayne County Speedway in Orrville, Ohio. (This is a $\frac{3}{8}$ -mile high-bank dirt track with a weekly program of Super Late Models and 410 Winged Sprints.) It has hosted the "All Star Sprint Series" annually for the Ohio Speed Weeks and additional shows like the Outlaw Late Models. The likes of Tony Stewart, Dave Blaney, Kyle Larson, Kasey Kane, and many others of today's stars have raced on this track. It is also the home track for Lee and Dean Jacobs (whose grandfather built the track 50 years ago) and Jac Haudenschild ("The Wild Child") who race with the World of Outlaws Sprint Series. Brad Haudenschild, son of Jac, won the 2014 weekly Sprint Championship.

This is one of those tracks with a long history of litigation with the neighbors about noise and was put on



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The new Weld-Mask auto-darkening welding goggles from Miller Electric Manufacturing Company feature an extreme low-profile design that allow welding operators access into spaces where the use of a traditional welding helmet would be limited. This exclusive design is usable for gas welding and cutting, as well as light-duty MIG, TIG, and stick welding. It is ideal for maintenance, repair, and installation applications, and specialized welding applications where alternative welding protection is needed due to space constraints. The lightweight design significantly reduces neck strain and offers a tight-fitting eye covering to block out light from the welding or cutting arc. A flame-retardant head cover provides protection against UV/IR rays and light spatter, while the replaceable silicon skirt design ensures a comfortable fit for a variety of face profiles. Available with shade numbers 5, 7, 9, 11, and 13, the Weld-Mask also features a light state shade number 3 to provide clear vision between welding or cutting, and it provides 1,000 hours of battery life. A lens frame is included for the easy addition of a prescription or magnifying lens. Two sensors and a switching speed of 1/15,000 second ensure consistent protection. For more information visit www.millerwelds.com.

Get Hustlin'

Hustler Fans by Jones Racing Products Inc. are engineered to meet the demands of race applications. The Hustler Fans' three-blade technology offers a more balanced rotation while keeping the engine cool. The ultralightweight pocketed design of the center mounting hub is paired to three durable aluminum blades that are designed to produce extreme air movement through the radiator while keeping the overall moment of inertia at a minimum. The powdercoated finish adds to the overall strength and durability of the design. The 15-inch Hustler Fan weighs in at just over a pound. The 15- and 17-inch diameter fans have the benefits needed for use on

either dirt or asphalt water pump driven applications. Lightweight, black anodized billet aluminum fan spacers are also available in 2-, 3-, and 4-inch lengths to ensure the perfect fit and placement, sold separately. For more information visit www.jonesracingproducts.com.



E85 Two-Barrel

Holley's new Ultra XP 2bbl continues to improve upon the original 0-4412 2bbl that has been successful on circle tracks for decades, and it's now available for E85. It has an abundance of new features and improvements, starting with the aluminum construction for a 50 percent weight savings when compared to the zinc version. It also features Holley's Hard Core Gray coating for corrosion protection. This carb features no choke tower and an all-new air entry area for smoother airflow, yet it retains the critical venturi and throttle bore dimensions for rule racing. It also features a large-capacity XP fuel bowl, wedged float, dedicated race-only throttle lever, billet metering block and baseplate, and much more. For more information visit www.holley.com.



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2

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Speedway
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5

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6

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CIRCLE TRACK'S GREAT AMERICAN RACING SERIES VISIT: **CTGARS.COM**





Four-Way To Go

QA1 Precision Products Inc. has just released the Quad Adjust Shock, a four-way adjustable shock. This four-way adjustable shock features independent rebound and compression adjustments at both low and high shock speeds. These adjustments allow you to fine-tune your suspension for low shock speed situations, such as corner entry and exit, and high shock speed situations, such as hitting bumps or curbs. These adjustments give you maximum tunability, keep the tires on the ground, and improve control. Made of high-quality aluminum, this coilover shock has two rebound adjustment knobs for high and low shock speeds. The two compression adjustment knobs are located on the attached reservoir body and adjust both high and low shock speeds. All four knobs offer independent adjustability. The shock and reservoir are connected with a PTFE lined braided steel hose that swivels four directions on the bodies for flexible mounting. Also, a Schrader valve on the reservoir allows for on-the-fly gas pressure adjustments. Made in the United States, the Quad Adjust Shocks include all necessary coilover hardware and retail for \$599.95 per shock. Multiple reservoir mounting options are also available. For more information visit www.qa1.net.



New Carbon Brain Bucket


The Velocity 10 Carbon Graphic Helmet combines the cutting edge of helmet technology with great styling at a great price. Velocity Race Gear offers the Velocity 10 Carbon Graphic Helmet in the latest Snell SA2010 rating. This Velocity Race Gear helmet is suitable for use in all forms of auto racing and kart racing and features a lightweight carbon/kevlar/fiberglass composite shell with an advanced aero design with chin spoiler. A removable and washable comfort fit blended Nomex interior covers the Expanded Polystyrene (EPS) liner while a distortion free 0.125-inch Polycarbonate Low Fog Shield protects your eyes. The Velocity 10 Carbon Graphic Helmet offers adjustable eight-position tear-off posts and an aluminum pivot kit with an adjustable friction lock. A silicone shield gasket provides a tight seal, while the front and rear vents provide excellent ventilation. Available in sizes small to XXL, the helmet comes pre-drilled for head and neck restraint anchors. For more information visit www.velocityracegear.com.

High-Compression Gasket

Mr. Gasket's new MLS Head Gaskets are designed to handle increased cylinder pressure in high-compression race applications. The gasket layers are individually cut using a state-of-the-art laser cutting process for precision tolerance. During the assembly process the gasket is soft-radius embossed to provide additional protection in critical areas. This technique provides uniform clamp load distribution across the engine block deck and reduces stress points.

All Mr. Gasket MLS Head Gaskets go through a unique process after forming to reduce forming-induced stress points. The stress reduction process reduces brittleness in the

materials, increasing flexibility and deformation retention. A proprietary polymer is then applied to complete the gasket and ensure uniform coverage of the outer layers. A typical MLS gasket requires a smoother surface finish (30 Ra), but the coating on Mr. Gasket's MLS Gaskets will seal a surface twice as rough (60 Ra). Each head gasket comes with an industry-leading lifetime warranty.

Mr. Gasket MLS Head Gaskets are available from \$99.95 at retailers nationwide and online. For more information visit www.mr-gasket.com. 



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RACING AROUND



1 BATTLE AT THE BEACH MOVED TO MYRTLE BEACH

THE UNIVERSITY OF Northwestern Ohio (UNOH) and Myrtle Beach Speedway have announced that the UNOH Battle at the Beach will be relocated to Myrtle Beach Speedway in Myrtle Beach, South Carolina. The Battle at the Beach has been held at Daytona International Speedway the past two seasons to kick off Florida Speedweeks. Following the move, the Battle at the Beach will now be held in November and will be one of the two season-ending finales during Myrtle Beach Speedweeks 2015.

The first weekend of the Myrtle Beach Speedweeks 2015 will take place November 12-14 and will be headlined by the South East Limited Late Model Series (SELLM). The event will be named the UNOH 400 at Myrtle Beach Speedway. The Coastal Pee Dee Super Truck Series will also race then.

The second race weekend will be held November 19-21 hosting the UNOH Battle at the Beach, formerly known as the Myrtle Beach 400. The weekend will consist of the NASCAR Whelen All-American Series Late Model Stock Car feature and the season finale of the KOMA Unwind Modified Madness Series.

2 LERNERVILLE SPEEDWAY GETS NEW OWNERS

SARVER, PA—LERNERVILLE SPEEDWAY has been sold to Ted Tomson, owner of Tomson Scrap Metal in Brackenridge, Pennsylvania. The Tomson family has supported racing at Lernerville for years by sponsoring cars at the track. The World Racing Group will continue to operate Lernerville Speedway under DIRTcar Racing as scheduled for the remaining 2015 racing season. Tomson will make any changes during the winter. Lernerville Speedway is a $\frac{4}{10}$ -mile dirt oval located about 30 minutes northeast of Pittsburgh, and has run continuously since it opened in 1967. Don Martin opened Lernerville Speedway in 1967, but in 2005 the Martin Family sold the track to the World Racing Group who will lease the track for the remainder of the year. Tomson also owns other businesses in the area including TSM Harness Racing in Natrona Heights. For more information visit www.lernerville.com.

REGIONAL NEWS, INDUSTRY UPDATES & ITEMS OF INTEREST FROM AROUND THE COUNTRY

MANUFACTURERS, SANCTIONING BODIES, RACE PROMOTERS, TRACK OWNERS:
SEND US YOUR LATEST NEWS! EMAIL: RFISHER@ENTHUSIASTNETWORK.COM.

TALLADEGA SHORT TRACK'S ALFRED GURLEY DIES

ALFRED GURLEY, THE co-owner and promoter of the Talladega Short Track has died after a longtime illness at the age of 82. Gurley and his partner, Lynn "Preacher" Phillips built Talladega Short Track, a 1/3-mile, high-banked red clay oval, in 1977, shaping it into one of the top dirt tracks in the country. In 1989, Talladega Short Track was named "One of the best dirt tracks in the United States" by *USA Today*. In 2008, Gurley and Phillips were named promoters of the year, and for three years running both were named Southeastern Promoters of the Year in 2006, 2007, and 2008. Our condolences go out to the entire Talladega Short Track family.

3 MILLER MOTORSPORTS PARK SET TO CLOSE

TOOELE, UT—MILLER MOTORSPORTS Park, a facility that houses both a 4 1/2-mile road course and a short-course off-road track, will close at the end of the 2015 season. The track is owned by the Larry H. Miller Group. The late Larry Miller built the track in 2004 and it opened for business in 2006. However, the facility failed to attract fans. Due to high sanctioning fees and low attendance, the Larry H. Miller Group has decided not to renew the lease on the land, thus closing the track.

The track will remain open for the remainder of this year's racing season with several traveling racing tours, including MotoAmerica, the Lucas Oil Off-Road Racing Series, and the Lucas Oil Pro Motocross Championship on the schedule. It is unknown if another investor will take over the venue or if it will close permanently. For more information visit www.millermotorsportspark.com.

4 IMCA NAMES STANNARD VP OF OPERATIONS

VINTON, IA—JIM STANNARD has been named vice president of operations for IMCA, an Iowa-based sanctioning organization. Stannard will be taking over duties from former VP Brett Root while continuing most of his duties from his previous position as director of track relations. Stannard has had a long career in the racing industry, having

been the director of IMCA's Sprint Car division, director of the Mountain Region, and IMCA director of marketing in 1994. He had also been the VP of marketing and corporate communications before moving to Speedway Motors and JR Motorsports, respectively. He returned to IMCA in 2011.

5 LARSON ANNOUNCES OUTLAW KART SHOWCASE

CHICO, CA—DRIVERS FROM all over the country are expected to attend The Outlaw Kart Showcase presented by Kyle Larson. The Outlaw Kart Showcase will take place September 8, 2015, at Cycleland Speedway in Chico, California. It will offer a \$20,000 purse, with \$5,000 being awarded to the overall highest point-earner for the night. Box Stock and the 250 Outlaw Karts will also race that night.

The Outlaw Kart Showcase started in the mid '00s when promoter Lowell Moural ran a Thursday night race before the Gold Cup Race of Champions at Silver Dollar Speedway, but after a few years scheduling issues came up and the race was eventually dropped from the Cycleland schedule. NASCAR young gun, Kyle Larson looked forward to the race every year and is excited to help bring it back. For more information visit www.outlawkartshowcase.com.

6 MOODY MILE'S FUTURE UNCERTAIN

GEDDES, NY—THE NEW York State Fairgrounds historic 1-mile dirt track "The Moody Mile" may be in jeopardy following the 2015 racing season. The fairgrounds were given \$50 million by legislators in the last state budget to make renovations and improvements to the venue. Racing fans are concerned because plans to the new fairgrounds may include tearing down the grandstands of the racetrack, leading to open spaces and numerous new ideas, including horse racing. Local TV station reports indicate that international equestrian group has expressed interest in the idea of bringing horse racing to the New York State Fairgrounds. At this time, no decisions have been made concerning the Moody Mile's future. The 44th annual Super DIRT Week is scheduled for October 7-11, 2015. If you would like to share your ideas regarding the future of the Moody Mile, please email them to comment@agriculture.ny.gov. ☐

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2.5 HP, 21 GALLON 125 PSI VERTICAL AIR COMPRESSOR
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36" METAL BRAKE WITH STAND
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Pair of Arbor Plates Included

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• 1250 lb. Capacity

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**3-1/2" SUPER BRIGHT
NINE LED ALUMINUM
FLASHLIGHT**

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62573

**\$6.99
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80121940

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**MIG-FLUX
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Welder and accessories
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**SAVE
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• Includes Ram, Hook and Chain

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**9 PIECE FULLY POLISHED
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42304 shown

**SAVE
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80121375

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**RAPID PUMP®
3 TON HEAVY DUTY
STEEL FLOOR JACK**
PITTSBURGH

LOT 69227/62116
62584/62590
68048 shown

**SAVE
\$80**

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• Weighs 74 lbs.

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80097428

WOW SUPER COUPON

**2500 LB.
ELECTRIC WINCH
WITH WIRELESS
REMOTE CONTROL**
RADLAND

LOT 61258 shown
61840/61297/68146

**SAVE
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80108926

WOW SUPER COUPON

**500 LB. CAPACITY
ALUMINUM CARGO CARRIER**
PITTSBURGH

LOT 92655 shown
69680/60771

**SAVE
\$70**

\$79.99

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80108419

WOW SUPER COUPON

**8750 PEAK/
7000 RUNNING WATTS
13 HP (420 CC)
GAS GENERATORS**
PREDATOR

LOT 68530/69671 shown
LOT 68525/69677
CALIFORNIA ONLY

**SAVE
OVER
\$262**

\$537.13

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80112785

WOW SUPER COUPON

**1500 WATT DUAL
TEMPERATURE
HEAT GUN**
drillmaster

LOT 96289 shown
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**SAVE
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\$8.99 REG. PRICE \$29.99

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80113235

WOW SUPER COUPON

**10 FT. x 10 FT.
POUP CANOPY**
WFT

LOT 62513/62384
69456 shown

**SAVE
\$40**

\$59.99

~~REG. PRICE \$99.99~~

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80117382

WOW SUPER COUPON

**A/C R134A MANIFOLD
GAUGE SET**
PITTSBURGH

LOT 60806
62707

**SAVE
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\$49.99

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**72" x 80"
MOVER'S BLANKET**
BauMaster

LOT 66537 shown
69505/62418

**SAVE
66%**

\$5.99

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ULTIMATE RACING



The kick-off race for *Circle Track's* Great American Racing Series took place at the historic Salem Speedway. This shot from practice shows the #99 of Brian Bayer, #9 of Todd Kempf, #6 of Brett Hillard, and #74 of Josh Brading.

Circle Track's Great American Racing Series Round #1

THIRD-GENERATION RACER WILL KIMMEL HAS A HUGE PAYDAY AT HIS HOME TRACK OF SALEM SPEEDWAY

BY ROB FISHER
PHOTOGRAPHY BY
SHAWN CROSE, UNLESS
OTHERWISE NOTED

The inaugural Great American Racing Series event at Salem Speedway on May 9 was a race for the ages. The 100-lap, \$5,000 to win Street Stock event had something for everybody—wheel-to-wheel action, qualifying drama, racers representing seven different states, and a rising star ending up in victory lane. Did it go exactly as planned? No, but these things never do.

When the *Circle Track* team was

charged with developing an event series by our parent company we knew three things right out of the box. Number one we wanted it to be something that nobody had ever done. Number two we wanted it to be centrally located in the country so that racers from outside a particular track's immediate geographic area could easily access it. And number three we wanted it to be centered around Street Stocks. So, we built a series that would take Street Stocks (one of the largest weekly divisions in the country) and run 100-lap races at both dirt and paved tracks under a common set of rules while paying the significantly large purse (for the division)

The drivers' meeting took place under cloudy skies. Rain would ultimately delay the start by a little more than an hour.



Hoosier Racing Tires are the spec tire of choice for the Great American Racing Series. Local Hoosier dealer Baum's Racing Supply handled the mounting duties. G.A.R.S. racers are required to run the same four tires in qualifying, heat races, and the main event.



Local racers Ronnie Lux (#2) and Tim Rivers (#46) are all lined up for pre-qualifying tech inspection.



G.A.R.S. rules require a Holley-style 4412 two-barrel, and they get checked quite closely by the tech officials.



Beau Hendrich's young helper makes sure that his window net is up and secure for his qualifying run.



Official product sponsor decals are affixed to the front of each competing car.



Todd Kempf, who is the current Salem Speedway Street Stock division points leader, works on the rear end of his car. Kempf would ultimately finish Fourth in the main event.



Todd wasn't the only Kempf in the field either, his son A.J. wheeled car number 91 in the event, ultimately finishing 18th.



Louisville, Kentucky's Kyle Hadley patiently sits in his car waiting to qualify.

ULTIMATE RACING



We're digging the hairdos.



This fan seems to be enjoying himself, despite the rain delay.

Once the action got underway, the competition was great, with groups of cars forming tight packs all the way around the track.



You can see Salem's Pure Stock support division running on the inside oval in this shot of the G.A.R.S. cars on pit road. In addition to the Pure Stocks, we also ran the Four Cylinder class to the delight of the fans. At a G.A.R.S. race there's always going to be on-track action happening.



The story of the race had to be South Carolina's Curtis Peebles smoking a motor in practice, borrowing one from Salem's tech guy and having his crew swap engines during the afternoon, as you see here. He missed all of qualifying and the heat races but made the feature where he started dead last. He put on quite a show coming all the way through the field to lead for a time, before ultimately finishing Sixth.



Loren Short, seen here checking stagger, came from Michigan to run the race. Despite a couple of spins in the early going he soldiered on to capture a finish of 10th.

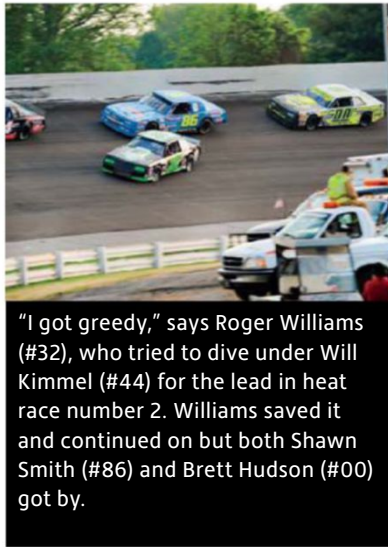
of \$30,000. Yup, pretty sure nobody has ever done that before.

In the formative discussions for the series we almost immediately knew where we wanted to kick it off. The historic Salem Speedway has a reputation for being a very fast, very unforgiving racetrack. Originally built in 1947, the high-banked, half-mile oval has seen its share of triumphs and tragedies over the years. The history of the place is palpable as you walk through the pit entrance. Salem also has a healthy local Street Stock class, which would help draw a good car count. So, after checking to make sure no other regional sanctions had major races on our proposed date, we announced the inaugural Great American Racing Series event at Salem on May 9 way back during December 2014 at the PRI Show in Indianapolis.

The Great American Racing Series format is loosely based on the old (and we do mean old) Daytona 500. Racers would make two qualifying laps, which would order the field for a pair of qualifying races. Lineups for the two heats (dare we call them "twin qualifying races"?) would be determined by your best lap time, which landed you in a numerical position. So qualifiers 1-3-5 ... would make up heat one while 2-4-6, and so on, made up heat two. The top 15 of each heat went on to compete in the feature. Those 30 cars would be paid out in a purse structure not seen in oval track racing in a long,



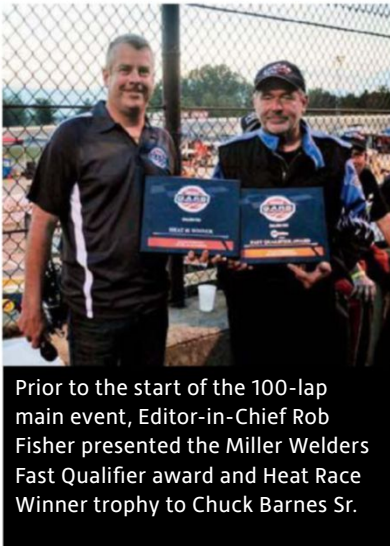
Nothing better than close Street Stock racing as Todd Kempf and Brian Bayer rub fenders.



"I got greedy," says Roger Williams (#32), who tried to dive under Will Kimmel (#44) for the lead in heat race number 2. Williams saved it and continued on but both Shawn Smith (#86) and Brett Hudson (#00) got by.



Indiana racing legend Bill Kimmel Sr. (black hat) was in attendance and got to see his grandson take home the winner's check.



Prior to the start of the 100-lap main event, Editor-in-Chief Rob Fisher presented the Miller Welders Fast Qualifier award and Heat Race Winner trophy to Chuck Barnes Sr.



As part of that awards presentation, a drivers' autograph session was held in the main grandstand area with the cars lined up on the starting grid behind.



The picture of concentration before the drop of the green.



Flagman Rusty Nunn gives the one to go signal.



You don't see this in a Street Stock race every day. Jeff Berg had a flat tire later on in the race and had to come to the pits to change it. He got back on the track and managed to pull out a 13th Place finish.



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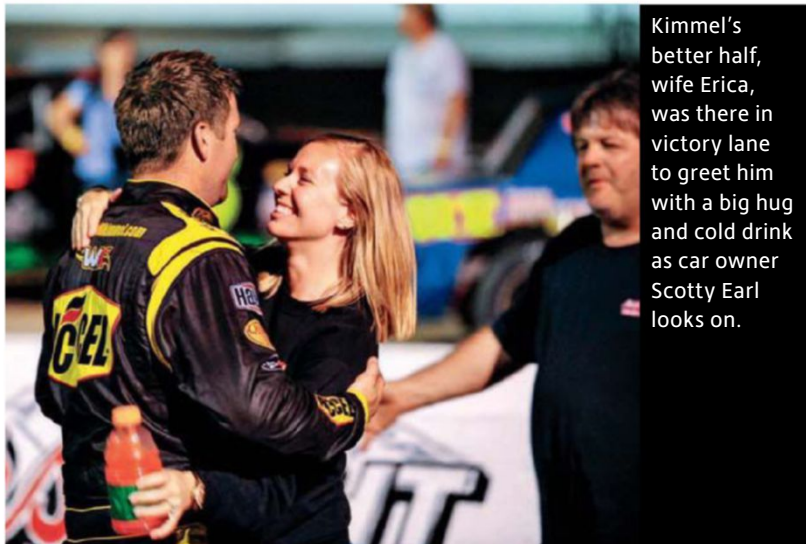
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ULTIMATE RACING



Brett Hudson (#00) and Curtis Peebles (#42) got together and spun late in the race while fighting for Second Place. Peebles had come from dead last at the start of the main event—thanks to swapping motors, he actually led a portion of the race. He would race back from the spin to finish Sixth while Hudson ended up 12th. You can see Will Kimmel (#44) drive away from the wreck en route to the win.



Kimmel's better half, wife Erica, was there in victory lane to greet him with a big hug and cold drink as car owner Scotty Earl looks on.



Shawn Smith from Louisville, Kentucky, finished Third and took home a nice \$2,000 check for his efforts.



Another Kentucky racer, Blake Hillard from Owensboro, finished Second and pocketed \$2,500.

long time, if ever (see sidebar).

As we rolled into Salem on the morning of May 9 we already had trailers with race cars lined up a full 2½ hours before the back gate was scheduled to open—that was a good sign. What wasn't a good sign was the weather. We had been watching it all week. There was a line of thunderstorms wreaking havoc in Texas, Oklahoma, and points just west of Indiana, and it was heading our way. So, the gates opened under cloudy skies but everything was dry ... for now.

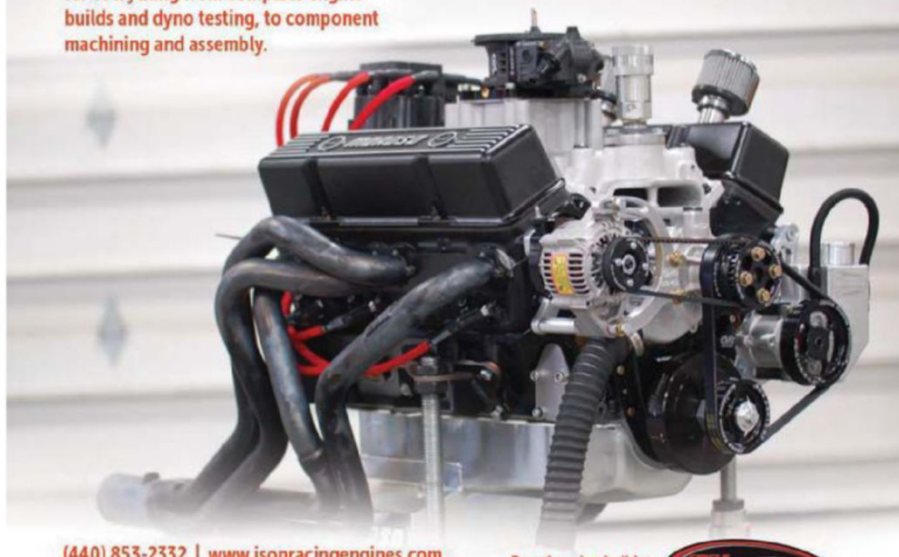
We had two afternoon practices scheduled and by the time the second practice ended, the rains had come. Fortunately, the downpour only lasted about 30 minutes, an hour later the track was dry and ready for qualifying action. Will Kimmel's 19.541 lap was fast but Chuck Barnes Sr. clicked off a tire blistering lap of 19.305 to grab the Miller Welders Fast Qualifier Award, as such Barnes started on the point for Qualifying Race #1. Kimmel paced the field for Qualifying Race #2. Each driver would dominate their respective qualifying races.

A pill draw determined the main event invert and pole-sitter Barnes did the honors in front of the slightly damp crowd pulling out the number 6, putting him in the third row with Kimmel alongside. At the drop of the green, it was evident that Kimmel was on a mission and by lap 18 he had the lead. There was plenty of side-by-side action throughout the field, but in the early going Kimmel had the pack covered.

As Kimmel was extending his lead, there was another story brewing deep in the pack. But this story started much earlier in the day. South Carolina's Curtis Peebles made the 10-hour haul from his hometown to Salem in the hopes of grabbing a chunk of the race's \$30,000 purse. But during the very first practice session, the motor in his car soured. He was left in the pits wondering whether or not the long trek to the Midwest would be all for naught. That's about the time that Travis Kern, a Salem Speedway employee, offered up a spare motor that he had sitting at the track. Peebles and his crew spent the remainder

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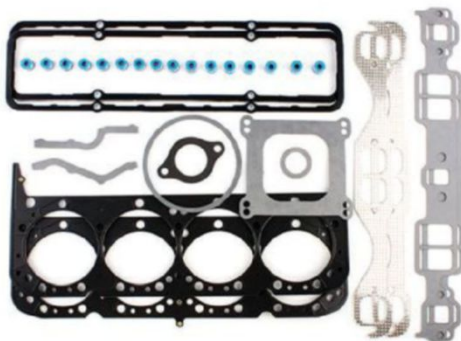
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OFFICIAL FINISHING ORDER

Finish	Car#	Driver	Hometown	Points	Winnings
1	44	Will Kimmel	Jeffersonville, IN	50	\$5,000
2	6	Blake Hillard	Owensboro, KY	48	\$2,500
3	86	Shawn Smith	Louisville, KY	47	\$2,000
4	9	Todd Kempf	Huntingburg, IN	46	\$1,500
5	99	Brian Bayer	Birdseye, IN	45	\$1,000
6	42	Curtis Peeples	Round O, SC	44	\$900
7	32w	Roger Williams	St. Paul, IN	43	\$800
8	5	Chuck Barnes Sr.	Louisville, KY	42	\$750
9	32	David Baynes	Austin, IN	41	\$700
10	3	Loren Short	Clio, MI	40	\$675
11	38	Artie Ware	Louisville, KY	39	\$650
12	00	Brett Hudson	Owensboro, KY	38	\$625
13	26	Jeff Berg	Louisville, KY	37	\$600
14	20	Marcus Elliott Jr.	Sellersburg, IN	36	\$575
15	77	Justin Pirtle	Palmyra, IN	35	\$550
16	10	Matt Stice	Perkin, IN	34	\$525
17	2	Ronnie Lux	Bethpage, IN	33	\$500
18	91	A.J. Kempf	Jasper, IN	32	\$500
19	7	Tony Conway	Louisville, KY	31	\$500
20	23	Ronnie Cotton	Owensboro, KY	30	\$475
21	18	Beau Hendrich	Palmyra, IN	29	\$450
22	46	Tim Rivers	Salem, IN	28	\$450
23	29	Mike Todd	Pleasant Hill, IA	27	\$425
24	74	Josh Brading	New Albany, IN	26	\$425
25	1	Brandon Tregembo	Ray, MI	25	\$425
26	12	Kyle Hadley	Louisville, KY	24	\$400
27	55	Phil Jenkins	Greenfield, IN	23	DNS
Heat Race #1 Winner			Chuck Barnes Sr.		
Heat Race #2 Winner			Will Kimmel		
Miller Welders Fast Qualifier Award			Chuck Barnes Sr.		
Miller Welders Hard Charger			Curtis Peeples		
E3 Spark Plugs Racing Beyond the Edge			Phil Jenkins		



The big winner, third-generation Indiana racer Will Kimmel accepts the winner's trophy and \$5,000 check. No wonder he's smiling so big.


of the day swapping engines on pit road. They missed all of the second practice session, qualifying, and the heat races, firing the new motor just in time to roll the car onto the starting grid for the main event.

G.A.R.S. rules allow a racer in Peebles' circumstance to tag the back of the field for the main event and that's just what he did. But while the field was watching Will Kimmel's bumper get smaller and smaller, Peeples was steadily coming up through the pack. By mid-race Peeples drove under Kimmel like he was tied to his hauler in the infield. G.A.R.S. rules require all competitors to run the same four tires for qualifying, heat races, and the main event. Since Peeples missed qualifying and the heat races his tires were fresher than any other car in the field.

As laps clicked off the South Carolinian seemed poised to run away with the race, but a late caution for Loren Short's spin would tighten up the field. On the ensuing restart it became clear that Peeples had used a lot of rubber getting to the front of the pack and this time he was not running away from the field. Kimmel would eventually get the lead back, leaving Peeples to contend with an onslaught from Blake Hillard, Brett Hudson, and others.

As the race neared the 20 to go mark Hudson and Peeples got together, which resulted in a tandem spin to bring out the third caution of the evening. Both racers were sent to the tail of the field for the restart. At this point it became Kimmel's race to lose. A smooth restart and Will set sail for victory lane beating Blake Hillard to the finish line by a little more than a second. Shawn Smith finished Third with Todd Kempf finishing Fourth and Brian Bayer rounding out the top five.

"It feels awesome to be here in victory lane," Kimmel exclaimed. "Everything worked perfectly tonight. The car handled great, the team worked hard. And after the start to our season this is a huge boost for our team. I cannot wait for the next one!"

That next one Kimmel is talking about takes place at Illiana Motor Speedway just outside of Chicago in June, which you can read all about right here in next month's *Circle Track*. 

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The screenshot shows the Hot Rod Network website. At the top is a navigation bar with links to various categories: HOT ROD, ROADKILL, S&P, STREET RODDER, CLASSIC TRUCKS, SHELLEY TRUCK, MOPAR, ENGINE MASTERS, and MUSCLE CAR. Below this is the 'HOT ROD NETWORK' logo and a search bar. The main content area is divided into sections: 'FEATURED CARS' with a large image of a 1933 Continental Coupe, 'HOT ROD TYPES' with a list of car categories, 'LATEST ARTICLES' with two featured articles, and a 'NEWSLETTER SIGN UP' form. The first featured article is '1933 Continental Coupe - Continental Divide' by Jerry Heasley, dated May 8, 2015. The second is 'This Rare 1971 Ford Mustang 429 CJ Ram Air Convertible was Found by the Side of a Road.' by Jerry Heasley, also dated May 8, 2015. The third is 'The Playmate's 1968 Ford Mustang G.T. 500KR Convertible' by Jerry Heasley, dated May 8, 2015. A 'CLICK HERE FOR A 30 DAY TEST DRIVE!' button is visible at the bottom right of the featured articles section.

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Before we begin our engine build, we needed to clean the block of all oil and other contaminants and deburr all of the rough edges, oil passages, and oil drain backs, along the cylinder deck—front and rear—and along the area where the oil pan will be mounted. A high-speed Dremel tool or air tool will be perfect for this job.

Great American Engine Build

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TEXT AND PHOTOGRAPHY
BY MIKE HUPERTZ

As of this date, the first Great American Racing Series race ran successfully while this engine was still in the process of being built. This story is about that build. In this three-part series we will detail the preparation of the various parts, fitting the parts together, and making the final assembly and dyno'ing the motor. At the end we will list all of the parts and manufacturers we

used and a spec sheet showing all of the sizes and clearances for the build.

This is a Street Stock motor that fits the rules of *Circle Track's* new Great American Racing Series and as such, may, or may not, be legal for your particular track or series. *CT* purposely left the rules a bit loose for the series in order to

cover the wide range of rules packages throughout the region where the series takes place.

Competitors in this series can run a stock motor right out of the "junkyard," a crate motor right out of the crate, or run a built motor constructed by the team or an engine builder.

The field is equalized by designating the weight of the car in relation to the power the team shows up with.

The motor build is being conducted by Ison Racing Engines out of Concord, Ohio, with lead builder Mike Hupertz and his team. They will be describing the build process and giving you, the reader, tips along the way that can help you understand what goes into having a motor built, or what you should know about building the motor, if you choose to tackle it yourself.

This build is designed to demonstrate what can be done to create a motor that is versatile

About the Author

Mike Hupertz is the lead engine builder for our G.A.R.S. engine and works with Ison Racing Engines. Ison is a full service engine shop that builds and services racing engines from all facets of motorsports, including automotive, powersports,

and motorcycle—specifically Harley-Davidson. From their website they explain: “Everything from complete engine builds to component machining and assembly, Ison provides precision workmanship by our experienced staff. Outfitted with the finest equipment,

including Sunnen hones, Kwik-Way boring bars, Serdi seat cutters, and Haas five-axis CNC mills, close tolerance machining and repeatability can be expected. Our extremely clean state-of-the-art facility is a testament to our principles and dedication to quality when working on

your powerplant.”

Hupertz has been very good to work with and has coordinated this process with all of our parts supply partners to put together a great engine build that will power Will Kimmel’s car in the June 20 G.A.R.S. race at Illiana Motor Speedway.

and that will live a long life being run on both dirt and asphalt, short and longer tracks, and having the durability to stand driving the wheels off the car. What you choose for your engine can encompass many different combinations of parts and a variety of cost levels. The durability may be greater with the higher priced parts, but the power level will be similar between levels of motors.

In the G.A.R.S. series, the engines are restricted to using a Holley 4412 2 bbl, 500-cfm carburetor. You could go as radical as you want with cam designs (all cams are limited to 0.550-inch maximum lift), heads, valves, and so on, but you will only flow 500 cfm, so some money could be wasted on parts designed for much higher rpm than what these motors will effectively run at and produce usable horsepower.

Other rules of importance for the G.A.R.S. series include limiting the engines to 364 ci, unless you have a larger motor up to 410 ci, and then you must run 100 pounds more weight.

The carburetor is the Holley 4412 as we stated and the intake must be cast iron or the aluminum Victor Jr. from Edelbrock. The maximum height from the floor to the bottom of the carburetor is 4.25 inches.


The heads must be cast-iron 23-degree heads, OEM or aftermarket, brands and part numbers specified, and the valves must be steel or stainless steel and retain the stock valve stem

sizing. Stamped steel rockers or rollers may be used, but no shaft rockers, and the cost must be at or under \$200 retail value. The maximum valvespring seat pressure is 150 pounds.

Stock or aftermarket cast-iron blocks must be used, must retain a stock appearance, and must not be lightened. Only timing chains are allowed and you can use solid or hydraulic lifters, but no roller cams. The maximum lift for the cam is 0.550 inch.

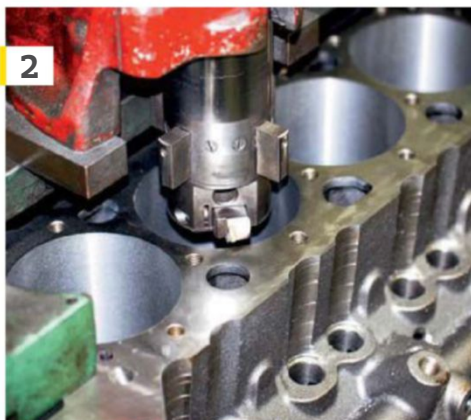
The oil pan must be steel and you can use an oil cooler, but no dry sump, wet sump only. To supply fuel, you must use a stock-type fuel pump, no electric fuel pumps allowed. The

exhaust manifold can be stock OEM, or mild steel headers (2½-inch diameter only), with a Schoenfeld muffler (PN 83030) for mandatory use with headers. The sound level maximum for all cars is 95 dB or less.

So there you go, simple but effective rules that are loose enough to include many different rules packages whereby the tech committee for G.A.R.S. will evaluate the equalizing of the field as the series progresses and as necessary. We want tight and competitive racing where the driving, setup, and the preparation is what determines the success of the team. On to the build! 



After the deburring process we needed to establish the deck height. We do this first to ensure the housing bores are parallel to the deck. These blocks can be used with a number of piston combinations and the builder can match the deck height to whatever piston and rod combination works best for the particular build.



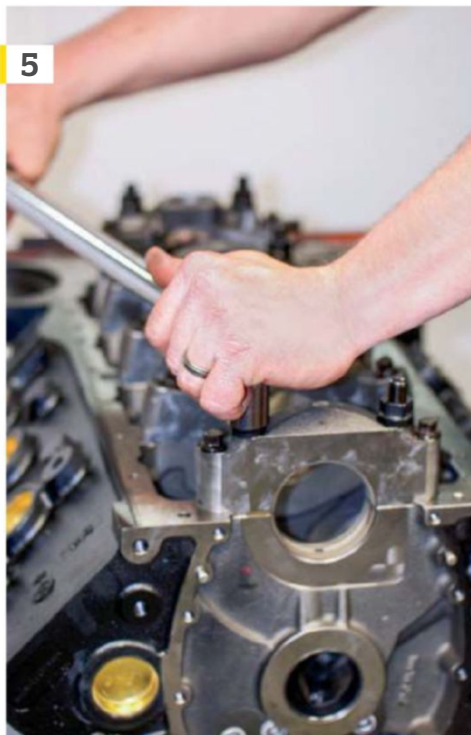
The World Products Motown block comes from the factory with a rough bore of 3.995. For this build we needed to bore the block to a rough bore of 4.025, we did this after establishing our deck height to ensure the bore was perpendicular to the deck.



After completing the boring process it was time to finish hone the block to fit the Mahle pistons. Because this build called for cast-iron heads we installed the appropriate torque plate (cast iron, not aluminum) with the head gasket in place and the fasteners torqued to 75 lb-ft. We completed the operation, setting the piston to wall clearance at 0.003 inch.



As a part of the initial checking process, we check the balance of the crank. We are using a Callies Compstar Ultra Light crankshaft in our G.A.R.S. motor, and since we will be running some of the races on large tracks where we will see high rpm for sustained lengths of time, engine balance is critical to engine life. Later on we will weigh and match all of the rotating components, too.



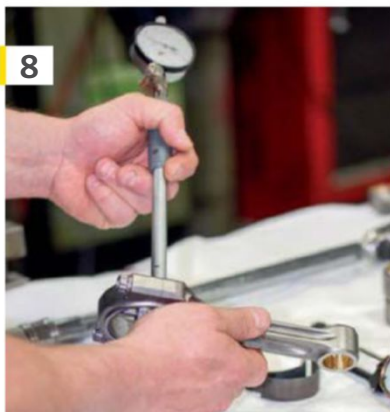
The next step in our build process is to check all of the main bearing bore sizes against our intended bearings; we install the bearings in the main caps then torque them to the manufacturer's recommendations, and again check the bore against the crank journal sizes. We can mix and match over- and under-size bearings to compensate for differences in clearance.



Here we are carefully measuring the bearing bore size at three places around each bore. We do this to ensure the bearing has the correct amount of vertical oil clearance as well the proper eccentricity. If you are building your own motor, take time to do this right because these clearances will largely determine the life of your motor.



For hard-to-reach areas that need to be checked, the tool of choice is a dial bore. You want one that is graduated into ten thousandths of an inch or 0.0001; the tool is set from gauge blocks or the appropriate size micrometer. These come in handy for any bore that you need to measure very accurately.



Once we have sized the main bearing bores, we need to determine the rod bearing oil clearance. We again check the rod size with the bearing installed in three different places. We also check the wrist pin bore on the rod. This is a good time to number the rods as to the cylinder they will live within from now on.



9

Once we have determined the connecting rod crank size and wrist pin bore, we measure the wrist pins themselves.



10

To match the wrist pin diameter to the rod bore, we carefully resize the bore for a perfect fit of 0.0005.



12

For our build we used the rings supplied with the Mahle pistons, these are 1.5/1.5/3mm, which are a file fit type. For a race engine, the file fit rings let you put the ring gaps at the desired size for a wide range of applications. We filed the rings to a top gap of 0.021 and a second gap 0.025 for this build. If you're unsure of the proper gaps, error on the larger side rather than the smaller side. You may lose a little horsepower but the rings won't butt, causing extensive engine damage. Be sure to deburr the ring after the filing process so it sits properly in the ring land.



13

The same lubrication process takes place with all bearing surfaces. Here we use an assembly lubricant that will allow the engine to live and be properly lubricated until the oil is efficiently flowing through the motor on the first startup.



14

Before placing anything in the cylinders, we always lubricate the bores with the proper break-in oil. There are several manufacturers that offer specific engine oil with the correct additive package for proper break-in.



15

When installing your rods and pistons, be very careful with the edges of the rods and caps. There are sharp edges that can scratch and gall the crank or cylinder surfaces.



11

We now need to check the piston ring gaps. We use a ring squaring tool for this but, if one is not available to you, an alternative method would be to use a flat-top piston. This will do the same thing. You want to ensure that the ring is square in the bore and sits evenly to the deck. Roughly 1 inch down is the proper depth.



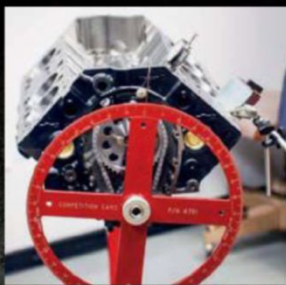
16

Before installing the cam, we coat the lobes with a high-quality lubricant that promotes the proper layer of protection to ensure there will be no troubles during the break-in process; you want to make sure you have good coverage, especially on the nose of the camshaft as this is where the highest spring pressures will be. This lubricant is made to dissolve into the break-in oil and stay in contact with the lobes long enough for the engine oil to completely coat all of the parts when the motor is first fired up.

Degreeing the Cam

Here we see the degree wheel with the pointer set to zero and the lobe checking tool in place to read the travel on the lobe of the camshaft.

One of the most important things that needs to be checked is the intake centerline; it plays a vital role in cylinder filling. It's important to note that all cam manufacturers grind "advance" or "retard" into the cam so checking and adjusting this will ensure the engine will operate correctly in the specified rpm range.



The value is noted in degrees on the manufacturer's cam card. For this build I installed the cam at 102 degrees. The method for determining centerline starts with the lobe,

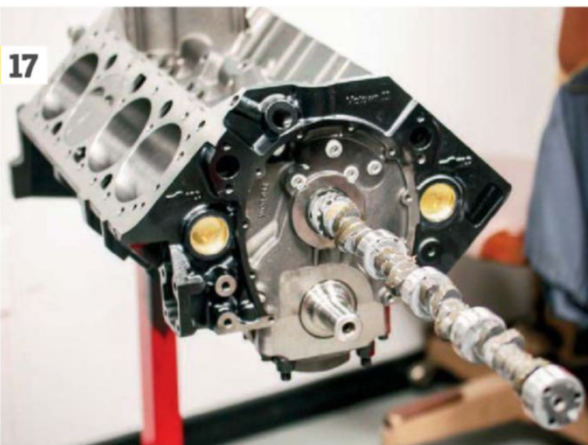
precisely 0.050 before, and 0.050 after max lobe lift. Rotate the engine until you reach max lobe lift. Set your indicator to zero at the top of the lobe. Now rotate the engine counterclockwise, watching the gauge on the lobe until it's 0.080 to 0.100 lower than max lobe lift.

Now rotate the engine clockwise back to 0.050 BEFORE max lobe lift and record the number (this ensures the chain is always tight to normal engine rotation). Then, continue

rotating clockwise, again watching the indicator until you reach max lift and stop at 0.050 AFTER max lobe lift. Add the two values together and divide by two, this is your intake centerline.

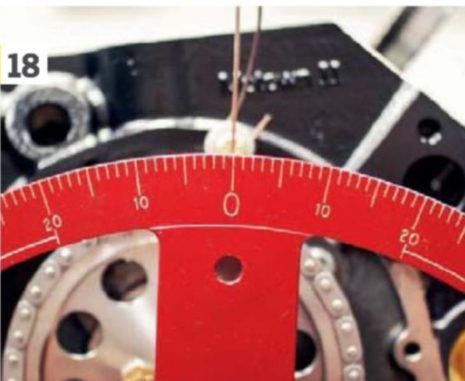
We then note the reading on the degree wheel. If it is not the cam manufacturer's cam card, in this case 102 degrees, then you need to adjust the cam sprocket until you read the proper advance on the degree wheel. Then you will have the proper cam timing set for your motor build.

17



The insertion of the cam is another process that should be done carefully to ensure that none of the cam lobes are scratched. Take your time and keep rotating the cam as it goes in to check for any binding or tightness.

18



Once the cam is installed, we also install the number one piston and timing chain. We then mount a degree wheel onto the crank. The larger the degree wheel is the more accurate the process will be. This process is in preparation for degreeing the cam against top dead center of the number one piston.

19



To find top dead center of the number one piston, we simply use a magnetic base with an indicator positioned over the number one piston (Chevy is on the driver side front cylinder). We then rotate the crank until the indicator reads the highest reading, ensuring that the piston is at its highest point or TDC. We then position the pointer to zero on the degree wheel.

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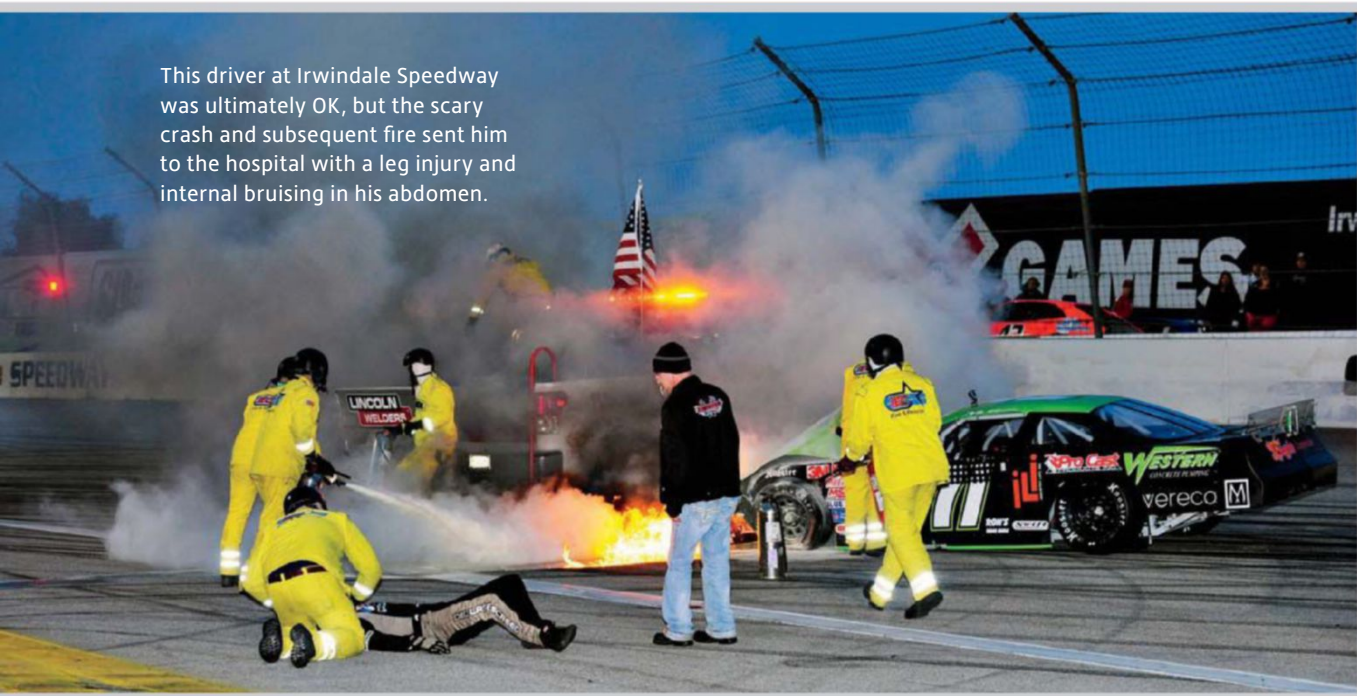
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This driver at Irwindale Speedway was ultimately OK, but the scary crash and subsequent fire sent him to the hospital with a leg injury and internal bruising in his abdomen.



Stock Car Safety

A HISTORY LESSON FOR THE FUTURE

TEXT AND PHOTOGRAPHY
BY **BOB BOLLES, UNLESS
OTHERWISE NOTED**

In the history of stock car racing, and auto racing in general, there have been times when the construction of the cars caused safety concerns. In most cases, those issues were recognized and dealt with so that they would not occur again, most times way after serious crashes occurred. In some cases, the problem came back

around years later because the newer generation knew little about the previous problems.

So, it would be in the best interest of the sport to readdress past problems, evaluate why they happened, and educate the newer generation as to how to avoid repeating past mistakes. That is what this piece is all about, moving forward using knowledge of the past.

While there have always been fatal accidents in racing, there are certain periods that stand out. In the '80s in Northeast Modified racing we saw quite a few fatalities until someone caught on that the framerails were way too stiff. Although I don't know the exact cause of death

in each instance, one can assume that basilar skull fracture was associated with many of those because of the many head-on impacts involved.

The years 1999 through 2001 saw numerous driver fatalities from impacts with concrete walls. Of course, the most well-known involved Dale Sr. That one event caused the ground to shake in every racing community, stock car especially. I do believe Dale's tragic end was a catalyst that might well have saved many lives since.

Looking at the possible causes of the problem, there was a reason why all of a sudden drivers were not able to withstand the force of impact for each of these periods. Something changed along the way that caused the impacts to affect the driver more severely.

How We Got To That Point

In the time since 2001, we might have suffered more deaths in stock car racing as well as other forms of automobile racing had events not unfolded like they did. Everyone inside and outside the sport of auto racing had come to realize that something needed to be done to make this sport

safer for the drivers. And they did.

Before 2001, talk centered on soft walls. Most of the talk about making stock car racing safer had been centered on designing a soft wall technology, and virtually no one was mentioning the construction of the cars as a possible cause—until February 20, 2001, two days after Dale's crash. That day a story was published in the local newspaper that shed light on the root of the problem.

In that article, experts pointed out that it was possible that the cars had become too stiff whereby the forces from near instant deceleration were transferred excessively to the driver. The weak point is the base of the skull and that is the only part of the body that holds the head from moving forward.

In sudden deceleration, the tendons and muscles are not strong enough to counter those huge forces and they break. When they do, massive damage is done to the spine and base of the brain causing near instant death.

As a result of that period, racers have come to understand the risk they take in all forms of racing by not protecting the head from sudden forward motion. And so the head and neck restraint was developed by several companies to assist in controlling the violent forward motion of the head in a crash. There has also been the introduction of soft walls, and that technology has helped tremendously, but few short tracks have the soft walls even today.

The use of head and neck restraints since that time has become almost the norm among drivers. We have, for the most part, eliminated basilar skull injuries among those drivers who religiously wear the devices. While that is a good thing, we have not eliminated injury from high speed impacts with walls.

In 2013, a driver impacted the first turn wall at New Smyrna Speedway and he was wearing an H&N device. He survived, but the impact was so severe that both of his retinas detached and his vision became very poor. Even to this day, that same driver has problems



The front crush zone is critical to absorbing energy when we hit the wall head-on. We can learn a lot from history about how to improve our design, or we can let it repeat itself. Here we will take a look at the future of stock car safety, from a past perspective.



This stock clip front end has a lot of bends and angles designed into it. This is not by accident (excuse the pun). Passenger car manufacturers have long been aware of the importance of crush zones and energy absorbing that is needed to be designed into a car to help the occupants survive hard crashes.

The rear frame member on a stock passenger car is curved like the front. Rear end impacts are cushioned and the deformation of the frame lessens the g-forces transferred to the occupants.



Modern test equipment such as this one help us design better helmets. But as good as we get at improving the various parts and pieces, we still need to manage the magnitude of the impacts through proper construction techniques. When was the last time you heard a chassis manufacturer tout the safety aspects of their cars? Probably never.

with his vision. Could a softer car have helped dissipate the energy?

The Soft Car Solution

The article previously mentioned suggested that we might need soft cars in addition to soft walls and it told how the construction of stock cars has

evolved over the years. Many stock cars are not able to crush sufficiently in order to absorb the impacts with concrete walls. As a direct result of that story, a lot of attention has been directed toward understanding the problems associated with the construction of chassis.



The front of our NASCAR Late Model stock car had an angle built into the front of the main framerail. This provides some angular deflection when and if the car impacts the wall. The bracing out to the front valance could be stronger in most cars too, in order to start the process of energy dissipation early in the crash event. Note the larger diameter tubing extending to the very front.

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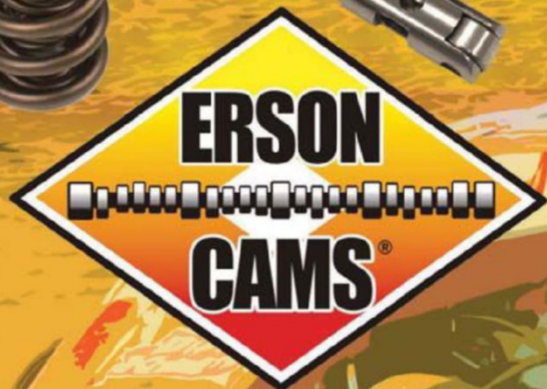
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The problem with stiff cars had become an industry-wide stock car racing problem. In previous years, way too many short track drivers had lost their lives from either basilar skull fractures or massive head injuries, as described in the news accounts of those events.

The injuries seem to point toward chassis that were too stiff. These horrible losses are not acceptable and tell us clearly that the whole of the industry needed to take a good look at how the cars are constructed and the car builders and teams needed to make changes where necessary.

The Balanced Setup

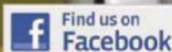
In order for a stock car to handle correctly through the turns, it must have a balanced setup. We know now, due to technological advancements, that the term "balanced" means that both ends of the car will desire to do the same thing in the turns, at high speeds. The setup in a stock car is correct when both ends are made to want to do the same thing.

Because stock cars were becoming more difficult to balance, the culprit was thought to be chassis flexing, or compliance as referred to by some of the engineers of that period. In order to "fix" the problem, designers of the chassis started to stiffen the cars from the right front to the left rear. This really didn't help much, but it did make the cars much more dangerous.

The Chassis Becomes Stiffer

From approximately 1995 on, the teams and car builders continued to make changes to reduce the amount of flex in the chassis. The primary part of the cars that presented the biggest flex problems was the right front corner. As time went on, the right front corner became stiffer. The problem we face is that, in many cases, the first part of the car to contact the concrete wall is the right front of the car.

Brain injuries started to appear in the period between 1997 and 1999 when we saw several well-known drivers suffer serious brain-related injuries. The problems associated with the stiff chassis were beginning to show on a scale that was definitely noticeable.



Then in 1999, teams were allowed to increase the wall thickness in the tubing that is a part of the front of the chassis. This further increased the stiffness of the front ends. It is obvious, with the tragedies we have seen, the excessive amount of g-force transmitted to the driver's bodies made crashes less survivable.

Many factors needed to be addressed when considering the redesign of the cars. As we add structure and components to the cars in order to assist in dissipation of energy on impact, we need to also consider the effects each change has on the way the cars are set up and how those changes will affect the performance of the cars. For example, adding weight to the front of the car affects the weight distribution, which directly affects the handling and the way we set up the cars.

If we decide to raise the framerail on the front of the cars to increase the angles formed by the tubing, we might alter the geometric layout that is so critical for camber control and roll center location. These two effects play a significant role in allowing the front tires to work the way they should.

Compromises That Won't Hurt Performance

As compromises to the above, it may be possible to move the engine back a little farther in order to compensate for the increase in weight to the front of the car to offset the effect of the added weight of the crush components.

We could angle the tubing at the front of the car in such a way that the geometry we have carefully designed into the cars remains the same. These are good examples of considerations that must be made during this process of change. Each proposed change must be carefully examined before implementation. Here are some thoughts and a bit of information that might help in understanding this complex predicament.

Crush Zones are Needed

Stock cars need crush zones—period. The crush zones should be built into areas of the car that have a good

Stock car safety extends to the whole race crew. Making sure to put jackstands under the car when the crew is working beneath it is not just a good idea, it is essential. I have many times gone and fetched stands when I see a crew member crawl under a car that is supported only by a pump jack. I refuse to stand witness to that kind of accident.



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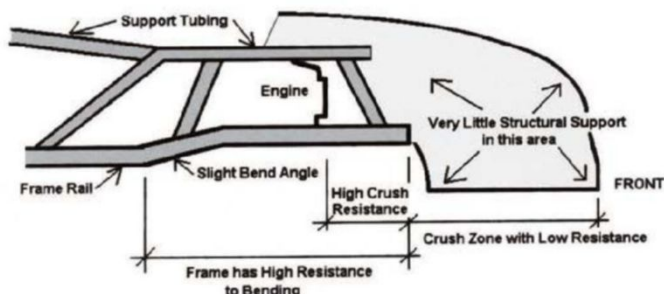
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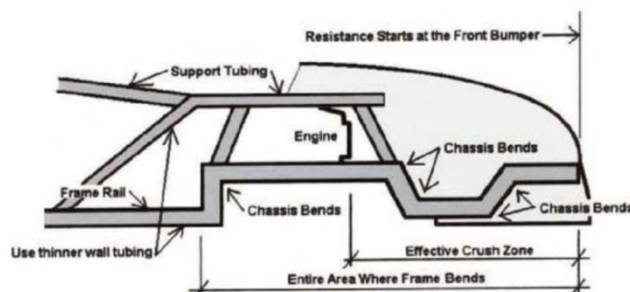


The side bars should be placed as far away as is practical for the body type so that the driver is better protected from a side impact. Plating this area provides further protection from intrusion into the cockpit. Drivers have been speared by small-diameter steel pieces used for attaching body panels and the front valance.

This fuel tank bladder is surrounded by a strong metal enclosure. Should this car experience a rear end impact, the fuel tank will stay in the car and the bladder will prevent fuel from spilling and igniting. Some car builders are now moving the fuel cell farther forward.



Building a front clip that has shallow angles and that is braced excessively can cause the impact to be more severe on the driver. When the front end does not crush in a high speed, into-the-wall crash, the deceleration is very pronounced and the time from initial contact to the car stopping is shortened. This is directly translated into high g-forces of 50-70 g's or more as recorded in actual crash evaluation. Drivers subjected to 40 g's and greater stand a good chance of being killed without the proper safety equipment such as a head and neck restraint. Even then, internal and eye injuries have been recorded.



This is an example of how a car might be constructed to provide crush resistance all the way from the front of the bumper to the engine. The bends in the framersails allow the frame to crush and resist the impact. The wall thickness of the main rail could be less going forward from the front of the engine.

STOCK CAR SAFETY

chance of coming in high-speed contact with the wall or other obstructions. The crush zones should collapse in a controlled way in order to slow the car and extend the time it takes to stop the car to reduce the g-spike.

The way some stock cars collapse (or don't collapse as the case may be) makes it easy to understand why drivers can get hurt. The nose area of the car is supported with minimal structure and will provide little resistance when the car crashes into a concrete wall. As the nose is pushed back, the wall contacts the end of the front clip or frame of the car.

The front clip is the part that may be constructed too stiffly. The speed the car is traveling when the actual frame reaches the wall is much the same as before the nose contacted the wall. Therefore the car stops in a very short distance and transmits excessive g-forces to the driver.

Proper Crush Design

What we know from past research is that the cars need to crush with a constant resistance over a predetermined distance. That distance is directly dependent on the speed at which impact is made and the amount of g-forces the human body, or in our case, a driver's body with helmet attached, can withstand without serious injury.

Using the g-force limits and the maximum vector speeds (not necessarily forward speed but speed perpendicular to the wall), it has been written that we need a crush zone distance of between 2.2 and 3.0 feet. Coincidentally, in most race cars, there is almost exactly 3 feet between the front of the bumper and the front of the engine.

All production cars are designed to crush like an accordion and they offer constant and equal resistance throughout the entire range of the crush zone. This reduces the g-forces transmitted to the occupants of the car.

The second area is the actual main frame. Once the car crushes back to the point where the ends of the fram-rail are, then the frame must take over and continue the resistance until



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the required crush zone design distance is used up. Too little resistance of the first zone and too much for the second zone equals high g-forces upon impact.


Critical Elements for Crush Zones

The most important elements in crush zone design are the amount of resistance of the crush zone structure and the ability of the structure to provide constant and equal resistance all during the crash.

Head restraints for lateral movement that are built into the seats for superspeedway cars have evolved into much stronger and efficient designs. The better devices offer an extended range of protection while enabling the driver to see to the side of the car. Limitation of lateral head movement is a safety goal of those who manufacture racing seats.

Conclusion

The sanctioning bodies and track officials for all of stock car racing need to understand the risk and weak points of the cars. They need to fully understand how we get into trouble with driver safety, how important it is to quickly evaluate their own particular safety situation, and then put together a list of changes that will be responsible and effective. If they can do that, then once all is said and done, the losses we have suffered as a community will not be in vain.

Do your individual part by buying and using a quality head and neck restraint, a modern, well-designed seat, a highly rated fire suit, and racing-approved helmet and gloves. And above all, race within a car that will dissipate energy in a hard crash. Let your car builder know that you are concerned about your safety. Create your safer environment today. 



The seat in a modern stock car needs to be installed inside a dedicated frame. That way it remains with the chassis and rollcage to protect the driver. Bolting the seat to the floor is not acceptable, even in stock class and mini type of cars.

The modern racing seat has not only rib support, but shoulder, side, and rear head support. It will have reduced loss of shape and more support of legs. The head and neck restraint systems do a great job of reducing forward motion, but we need side support also from the seat design.



A head and neck restraint for dirt racing? You bet, that's Sprint Car racer Cody Darrah's helmet. You can never be sure you won't have a high g impact frontal crash, even on dirt. Afterward is too late to consider the consequences. If you suit up, you need a good restraint system.



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Short Track Sims

IT'S HERE, AND
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TEXT BY MATT PANURE

Aspiring superstar racers perked up when they heard the news of Denny Hamlin in 2006. Hamlin credited a win in his first visit to Pocono Raceway to online gaming, and a feeling of familiarity with the triangular track before ever touching the surface. Suddenly anyone with a computer and dreams of NASCAR hit the scene.

In the years that have passed the technology has become more defined, and simulation racing has become as real as it has ever been. It's so real, in fact, a pass through the list of sim account holders may look like the starting grid for Bristol. Many top level drivers take the time to hone their skills and get a feel for a facility beforehand.

Not surprisingly, iRacing, which has surpassed other competitors as the top sim program with nearly 60,000 members worldwide, felt a need and a want to capitalize. However, they chose not to stop with the major circuits of NASCAR and road racing. Over the past several years iRacing has been adding more notable short track facilities. They also have added the most popular short track classes. The ovals Lucas Oil Raceway, Oxford Plains, Irwindale, South Boston, and many

others leave a hearty menu for short track race fans to choose from when simulating a run in a Legend, Super Stock, or Late Model.

With the addition of local tracks and local divisions came a wave of short track racers to the iRacing website. Just as the top-level drivers have done, the racers took the opportunity to practice and sharpen up from the comfort their own homes. In many cases drivers have become regular competitors at tracks hundreds of miles away through simulation.

One driver who decided to take advantage of the offerings of iRacing is Ty Majeski. Over the past three seasons the 20-year-old University of Wisconsin student has become a breakout star in short track racing. Last season he captured the coveted ARCA Midwest Tour Championship as a rookie. This season he holds the points lead in both the Midwest Tour and TUNDRA Super Late Model Series.

Majeski holds another distinction in the short track racing world—on the sim side. He is the number one iRacer in the world (on ovals), and the first to have a rating of over 10,000. Majeski boasts a win percentage of over 70 percent.

What may be most impressive of Majeski's success in the iRacing world is his modest setup.

Many top sim drivers go all out with the experience. A triple monitor setup with top-of-the-line simulation steering wheels and pedals to go along with computers built just for gaming are not uncommon. There are some sim racers who have gone so far as to grab racing seats and place them in the office to make the experience as authentic as possible.

In contrast Majeski uses a three-year-old laptop computer and a dated simulation wheel and pedal system. "Some people say a good computer makes you slower, some say it makes you faster. I think the biggest thing is just getting used to what you have," Majeski says.

He recommends the young racer consider using the sim program to stay sharp and learn as much off the track as



Majeski's time on the simulator helped him be prepared when he visited New Smyrna for The World Series of Asphalt Racing.

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ULTIMATE RACING



Getting a feel for the track's lines is a huge benefit of the simulation. It's also a great opportunity to learn how to work through traffic without an expensive incident.

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A solid showing at New Smyrna helped cement the partnership between Majeski and iRacing.

PHOTO COURTESY OF BRUCE NUTTLEMAN

possible. "The biggest thing is to get on here, get laps, and get used to setting people up and passing cars," he says. The beauty in this form of training is that any wreck simply goes away with the press of an escape key instead of hours of work and thousands of dollars.

Competing against anywhere from 10 to 20 fellow iRacers at a given time, Majeski has made the rounds of the short tracks made available. He sticks mostly to the grassroots forms of racing, and prefers to compete in the Super Late Models and Late Models at the short tracks.

A chance to stay sharp during the offseason and rainy weekends does indeed translate into Majeski's seat time. The hand-eye coordination needed for iRacing has sharpened his skill on the track. Where many drivers go by feel inside the race car, all anticipation has to happen with the eyes in the simulation. "It's almost easier to drive a real race car because you have that feel and you know what the car is going to do. In ways, iRacing is actually harder to make

a lap. I think that really helps me be a consistent driver in real life."

Aside from that newly sharpened skill, Majeski said the layout and the experience on iRacing is as close as anyone can get to actually experiencing the tracks in real life. This serves as a study guide before heading to a new track. Every bump, every crevice, every unique characteristic is translated into the iRacing program. This is done by a very thorough process of capturing thousands of photos and 3-D laser scanning.

David Phillips, editorial director for iRacing, takes pride in his program's commitment to the reality of the simulation. The core objective of iRacing is to provide the most authentic simulation possible. As part of an ongoing process of improvement, iRacing updates their program four times a year.

A caveat given by both Phillips and Majeski is in the setup of the cars in the simulation. Although hours and hours of research and development go into creating the cars for iRacing, it is

nearly impossible for the adjustments to translate to real life due to outside variables, such as different chassis builders, rules packages, temperature, track conditions, and so on.

However, the basis of what changes will do to a race car is evident. Designers (and former race engineers) Chris Lerch and Eric Hudec work closely with outside sources in the racing industry to get things as authentic as possible. "I think they'll be the first to tell you that the changes aren't 100 percent precise, but what they strive for is that it's not so much the magnitude of the changes that's right, but that the direction of the change is right," Phillips says.

Majeski agreed, and knows racers who have learned the basics of a base setup from iRacing. "As far as what each adjustment does, it's very accurate. If you put a smaller sway bar in it will free the car up. If you put right rear spring in it, it will free it up," Majeski says. "Maybe the exact numbers aren't there, but all of the adjustments and what they do to the car are consistent in real life."

In a true litmus test of how the short track racer can use iRacing as a tool, Majeski turned his iRacing focus to New Smyrna Speedway prior to a visit in February for the World Series of Asphalt Stock Car Racing. Competing in as many sim events and practices as possible, Majeski studied the characteristics and learned the best lines around the high-banked half-mile.

"I almost felt like I was at the track before. We went on the racetrack and I was the quickest car in the first practice my first-ever time on the track," Majeski recalls. The early familiarity immediately paid dividends. Knowing where the car needed to be, and where he was most comfortable, gave Majeski extra time to provide feedback to his crew, led by the highly successful Toby Nuttleman.

The results followed. Majeski grabbed Sixth out of 35 cars on the first night at New Smyrna. The next night he won the feature. After two more Top 10s Majeski's potential run to a World Series title was cut short when a trailing arm broke and he experienced a wreck that ended the week's activities.

Although it may have ended on a sour note, the experience had a huge amount of positives for Majeski and iRacing. Because of Majeski's top billing on iRacing, Phillips and the iRacing clan had agreed to support Majeski at the World Series. They were so impressed by Majeski's success on track they decided to sponsor his racing program for the rest of this season.

"The fact that he chooses to use iRacing as a tool, and is vocal about how it helps him in his career, is a huge plus for us," Phillips says. "What better way to promote iRacing than through one of the emerging stars of short track racing?"

Should the call come from the upper levels of racing, Majeski will be prepared to lock himself in his room and become familiar with the new machine and new race facility via iRacing. Phillips recalled hearing stories directly from IndyCar driver Simon Pagenaud, who did the exact same

Majeski's time on the simulator helped him be prepared when he visited New Smyrna for The World Series of Asphalt Racing.




PHOTO COURTESY OF TUNDRA SUPERLATE MODEL SERIES (EAMON BAUMAN)

thing when transitioning to IndyCar from the American Le Mans Series. Majeski said the trickiest thing will be practicing the live pit stops and navigating the pit roads of new facilities.

In the meantime, Majeski continues to cement his iRacing and short track racing prowess by picking up wins

in both. Competitors in real life and online continue to chase him. He is aware of sim racers who test different computers, wheels, and setups looking for the extra tenth on the track.

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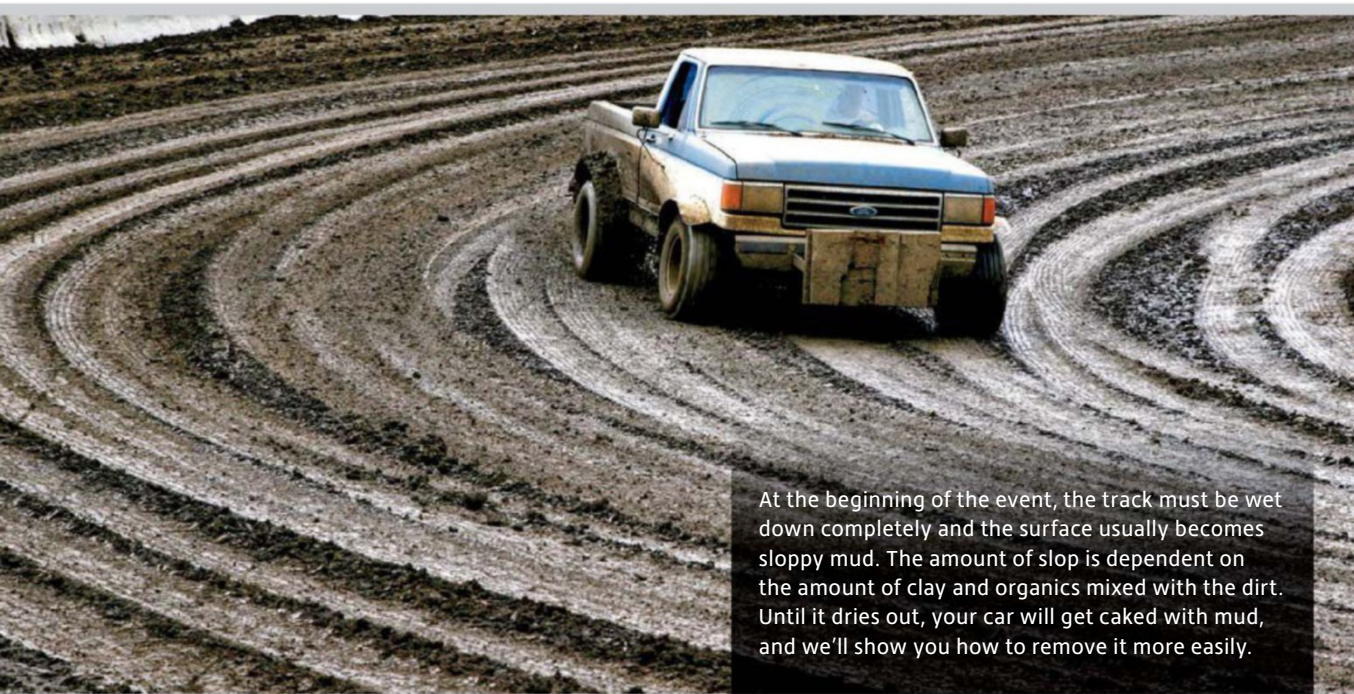
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Racing Clean On Dirt

THE EASY WAY TO
CLEAN OFF THE
MUD AND DIRT

TEXT AND PHOTOGRAPHY
BY VAHOK HILL AND BOB
BOLLES

While racing on the dirt has both good and bad points, and while this can be said of any race car on any surface, there are some unique drawbacks to racing on the dirt. One big problem is keeping the car clean. Every race car gets dirty and each type of car has its own form of grime. Cars that race on dirt or clay racetracks have some problems that are

unique to this type of racing.

Just how bad can it be? Every time you see a dirt car on television or in a magazine it may look dusty and have some traces of mud on the surface, but it just does not look that dirty. The pictures in magazines often show a car in the winner's circle and there may be traces of dirt and grime around the wheels and on parts of the body, but the car just does not look that bad. It's nothing a couple of dollars at the local car wash couldn't cure. What you don't see is the car after hot laps or the cars that were not good enough to run at the front all night. In reality the problem

goes a bit deeper for all of the cars.

Part of the process involved in getting a dirt track ready to race is packing the track or "wheel packing," as it is so affectionately referred to by race promoters and race directors. Racers seem to have different, more colorful terms to describe the process. It is during the process of running around the track at just above idle speed and "packing the track in." It is not uncommon for the car to get many layers of mud several inches thick on every exposed surface. At this point the track is not race-able and the racing surface more closely resembles a thick mud puddle.

Depending on the level of preparation, the composition of the dirt, and the amount of water that has been applied to the track, the surface can range from a light coating of water over a hard-packed surface of moist dirt to inches of soft and semi-liquid dirt, commonly referred to as mud.

As a racer, you have very little time between the end of the wheel packing session and when you have to start the qualifying process and/or heat races. You need to get the mud off the

car for a variety of reasons. First, the sheer weight of the mud is going to affect the performance of the vehicle. But that is only one of a multiple issues surrounding the reason for the removal of the mud from the car.

We need to remember that this is still a race car and, as such, we will be tuning or adjusting the car over the course of the night. We need to be able to get to the adjustments without chipping away at clumps of mud. Logic dictates that the greater the level of dirt seen on outside of the car probably means that more dirt has gotten into hidden areas of the car you want to remain clean.

Another point to mention is that your sponsor is paying good money for the fans to be able to see their name and/or logo on the car. And, let's not forget the people scoring the race. If the numbers are covered with mud it is very possible you will not be scored. So we can approach this from several fronts: performance, mechanical, the sponsor's perspective, and scoring.

So what is the answer? Just how do we keep the car clean? The real issue is not only how to keep the car clean but how quickly we can clean the car between heats. Anyone who has ever had to deal with mud knows that it can be very difficult to remove. So the next question down this logic path is how do we make the car easier to clean? This is a question that is easier to answer than one would think.

Racers tend to be very clever people. There are a number of methods and products that make cleaning your dirt car easier. They range from products designed especially to prevent mud from sticking to the car to ones that, at the very least, make it easier to get the mud off the car.

If you take a walk around the pits at the local track prior to the start of the first wheel packing session you will find racers spraying or wiping a variety of products on their cars in an effort to keep mud from sticking to their cars.



You don't even have to go out to experience getting covered in dirt and mud. Just park outside the turn area and wait. This car was splattered throughout the exterior and interior from Sprint Cars throwing wet mud almost 100 feet.



Applying one of several available coatings to the body before you go out will help keep the mud and dirt from sticking to the car. It also makes the car shine and it is a good way to tell where the coating has been applied and highlights where you may have missed a few spots.



There is enough clay on this car to start your own pottery business. The added weight of dirt and mud presents a real problem with the performance of the car, not to mention not knowing which car it is or the name of the car's sponsor.



A conservative guess would be about 150 pounds of extra nose weight from all of this mud picked up from packing the racetrack. Any that is not removed will affect the handling in a significant way. But what if it helps the car to turn? Nah, just add weight to the front if that is the case and remove the mud.

These products range from water-based waxes, vegetable oils, baby oil, and very light petroleum-based oils. The intention is to make the surfaces on the car where mud lands slick and slippery. Then the mud will just fall off, or so that is the intention. In actuality the mud may still stick, but it will be easier to wash or wipe off. Does it work? To some extent, yes, but there are limits. Does the mud just fall off? Not necessarily all the time. But it is easier to wipe off in the pits than if you do not "coat" the car first.

Some Products That Will Help

Mudd Off: This is a commercial product that was designed for this exact purpose. It comes in a concentrated form, and you mix it with water at a ratio of 10 to 1. Then you just spray it on the car prior to wheel packing or racing.

The popular method is to mix Mudd Off in a small garden bug sprayer and soak your car with the mixture. When applied to the car it looks like milk running off the car. Mudd Off can be purchased at most racing retailers and in some ATV shops.



The Mudd Off product looks like you are giving the car a milk bath. It is not that difficult to apply and it does not require that much effort. Simple, fast, and easy sounds like a racer's dream. With products like this, the mud will usually fall off on the track and not require you to scrape much of it off in the pits.

Baby Oil: Yep the same stuff that you put on a baby after bath time to keep their skin soft and smooth. The process is to squirt it straight out of the bottle on the car and wipe it down with a soft rag. This is about as simple as it gets. No mixing, no measuring, no extra equipment required. All it takes is fair aim and several shop rags.

The stuff is pretty economical and just about every grocery store in the country sells it. You can even get an economy brand at the local Wal-Mart for about \$1.99 a bottle, or you can get the deluxe product with the special fragrance and extra skin softeners for \$2.79—makes the car smell real nice to boot.

WD-40: Oil in a spray can. While this is not the only product of this type, there are other brands of light lubricating oil packaged in aerosol cans. This type of product is handy and it has multiple other uses. An added bonus is that this type of product actually repels water, besides making the surface of the car slippery.

Many team use products like WD-40 to spray on the headers to try and keep the mud from baking on. That makes cleaning nearly impossible. WD-40 can be purchased in 1 gallon containers and then transferred into special pump squirt bottles. It is available at Wal-Mart, K-mart, Target, NAPA, Auto Zone, Home Depot, Lowe's, Menards, or almost any place that sells automotive products and or home improvement or hardware.



Oiling down the rubbing points on the front axle and spraying down the heim joints can be done after the body is sprayed with WD-40 or a similar product. We don't want to concentrate on the body and forget to treat the suspension parts.

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Many of the larger chain stores like Kroger have a house brand of the product and there are generic brands of spray on non-stick cooking sprays that are even more economical. As an added bonus, this type of product is completely biodegradable. Who says racers aren't green?

That gives you an overview of the types of products available for the racer to help keep the car clean. But the big question is which one works the best? In the data gathering process I spent a good bit of time talking to racers to get their feeling as to how these products work and which ones they prefer. There was a variety of answers.

The one thing that I found interesting was that regardless of which product they sprayed on the car the majority of the racers used a WD-40

Mudd Off, baby oil, and special scrapers are popular tools to help keep the car clean. Baby oil is about as complex as a rock and almost as cheap. All it takes is a rag and some time to rub it on. This is a great way to get up close and personal with the car, look it over and give it a close inspection prior to heading out on the track.



The commercial tools seen here will help you to scrape off the mud that comes back to the pits. The shapes are varied and can be made at the shop. Note the two scrapers that are notched with the same radius as the tubing, helping to get the dirt and mud off those hard to scrape parts in one swipe instead of ten.



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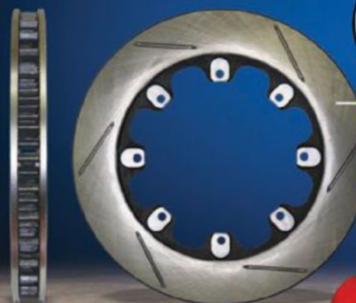
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type of product to spray on the exposed rod ends and mechanical joints and suspension points.

No matter which method of mud-release agent they were using there was still effort involved in removing the mud from the cars after wheel packing. The mud did not just fall off the car. That would be nice, but it did not happen. There was still a major effort by a multitude of people to clean the mud off and prepare for the next portion of the racing that evening.

The tools used to scrape the mud off were no less innovative. Special spatulas were cut with a radius that matched the tube diameter that makes up the chassis. Lots of plastic putty-type knives and wide plastic scrapers were used to speed up the mud removal process and still not damage the finish on the body panels.

No one process seemed to work better than the other or seemed to have any advantage over the other. Each racer did seem to have a favored process, and they did not seem willing to change what they had found to work for them. Some car owners used nothing to keep the mud off the car, and they seemed to pay the price in more time required to clean the car after wheel packing and between heat races.

The whole point is that applying some form of releasing agent is a step that does seem to add value to the racer and race team. Keeping it clean can be a whole lot easier with a bit of planning and the application of some slippery stuff to the surface of the car. **G**



Thanks to our efforts to slick up the car, much of the mud slid off the body and stayed on the racetrack. With a small amount of effort we got all of the big chunks off and we are ready to go out and do it all over again.

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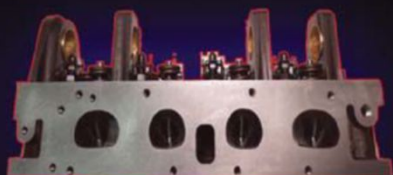
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THE MOD LITE STARS ARE AN ECONOMICAL ALTERNATIVE TO TRADITIONAL OVAL TRACK RACING AND THE SANCTION CAN DELIVER THE GOODS

TEXT AND PHOTOGRAPHY
BY TODD RIDGEWAY

In a day when affordable racing is a hard thing to come across, the Mod Lites deliver with full fields, a good and reasonable rule book, and hard on the gas racing that all adds up to racer enthusiasm with stability and direction, along with fan enjoyment and support. These are the little guys that could and are. Welcome to the Bilstein Modified Lite STARS, or Mod Lites as they are referred to by most.

The Bilstein Modified Lite STARS group is a non-profit organization that was formed to fill a void and restore much-

needed stability to the brand of Mod Lite racing. Serving as a national sanctioning body, the Modified Lite STARS International Championship

Tour represents an aggressively growing segment of motorsports and is recognized as the leader in Modified Lite racing. In its eighth year of operation the STARS program has gained widespread acceptance with its standardized rules and a growing sponsorship program. The STARS model is fast becoming the basic guide for pockets of localized Modified Lite racers around the country. The opportunity to watch mod lite racing for the first time will leave you with some lasting impressions with the side-by-side, close competitive racing and speed—lots of it. In fact, at most tracks, drivers are traveling at speeds close to the crate Late Models and Modifieds.

The Cars

The Mod Lite is a $\frac{5}{8}$ scale race car that resembles the Northeast DIRT Modifieds, but is powered by a 190-200hp 1,000cc stock 16-valve

motorcycle engine. Most racers use the Suzuki GSXR 1000 or Kawasaki ZX 10. The Honda CBR 1000RR is another type of powerplant, as well as the Yamaha YZF-R1, as they both will make their presence known on occasion. Typically these engines will only need a refresh about every three years with proper maintenance. These engines will produce in excess of 10,000 rpm while remaining pretty much stock, as they are the answer to a Crate Engine program.

There are some minor engine changes allowed that keep costs in check, but also are simple enough for any crewmember to complete. From casual observation while walking through the pits, almost all the racers are putting on different oil pans for ride height purposes, and most are changing out the airbox for a remanufactured one. An adjustable sprocket is typically added so you can make cam adjustments as needed. The fuel-injected engines are comfortable with either pump gas or ethanol fuel, as they do still use the stock fuel-injection system. By rule, the bottom end of the engine must stay in stock configuration with no modifications allowed. The complete clutch assembly must stay in the engine, although external reverse boxes are allowed. The engine must also be cooled by its original intent, while an extra fan or oil cooler is allowed.

There are five major chassis builders of the Mod Lites, which include Lightning, Evolution, Eliminator, Side-winder, and Velocity. The tube-framed chassis can be constructed of either square or round tubing and they can utilize either rack-and-pinion or power steering systems. While quick-change rearends seem to be the way to go, there are still a few racers using the ever-dependable 9-inch rearend. All cars must weigh in at 1,325 pounds with the driver after the race. As far as the bodies go, the car must pass through a hoop 60½ inches wide by 52 inches high. The allowable wheelbase

is 73 inches plus or minus 1 inch. Utilizing a shock claim rule, any car that enters tech at the end of a race may have their shocks claimed for the sum of \$100 each. Only the drivers who have competed in that race may claim another's shocks.

Where the power meets the dirt is a steel 13-inch wheel with a maximum width of 8 inches. Tires can vary by event with either Hoosier or American Racer getting the nod, depending on the region and track promoter.

Safety you say? The drivers are required to use a fire suit, single-layer minimum, one- or two-piece along with fireproof gloves, shoes, full face helmet of an SA2005 approval or higher. All cars must be equipped with a five-point safety harness no more than three years old with a minimum of 3-inch belts. Aluminum high-back racing seats are also mandatory. Window nets, arm restraints, and head and neck restraints are very highly recommended as well.



A full field of Mod Lites line up for their feature at Bubba Raceway Park in Ocala, Florida.



The rules package for this division offers plenty of side-by-side action.



The Mod Lite STARS series uses a 1,000cc stock motor program.



Typically plucked out of a Suzuki GSXR 1000 or a Kawasaki ZX 10 these motors produce anywhere from 190 to 200 hp.



The stock fuel injection system means that these race cars can run on pump gas, race gas, or ethanol, thanks to a self-learning computer.

The Organization

Leadership of any organization is a very key factor in success versus failure. President of Competition and Racing Operations Bill Bauer explains, "There are a few basic principles that we follow within the Mod Lite STARS organization. Each year starting in August we go into a rule review period, in which we encourage all clubs/regions and track promoters to participate. We take a 'no drama approach' at the track and by getting their feedback we hope to prevent the gray rule issues. We want our drivers and race teams to have an enjoyable night at the track, providing them with a standard set of rules."

Bauer's philosophy is also somewhat unique in today's motorsports landscape. "We look at each driver and car owner as our customer and our number one priority is to provide a purse structure that pays throughout the field," he explained. "Many series' purse structures are top heavy, with the winner getting a majority of the purse. We understand the Mod Lite racing is a support division and in most cases promoters work with us as their support division, which directly impacts how much a promoter is willing to pay. We try to avoid charging any registration fees. In some cases we charge a minimum amount that we either move into the purse or into the annual regional points fund. As a non-profit organization we strive to support our drivers with the best purse structures with help from our sponsors like Bilstein Shocks and many of the Mod Lite manufacturers. At our first annual Winter Nationals at Bubba Raceway Park, we paid our drivers more than \$13,500 for three nights of racing."

That kind of payout attracts a wide variety of racers, as Bauer says, "The Mod Lites is an excellent program for young drivers and we are seeing drivers using the Mod Lites as a stepping stone into the larger divisions. There are a few things we put into place to reduce the cost of racing. I think our biggest accomplishment is getting all our drivers into a stock motor program. For years, we had teams racing with stock motors against teams with

big bore motors. During the 2012 IMIS convention, the Mod Lite STARS invited engine builders from across the United States and sponsored an engine builder's symposium to discuss 1,000cc stock motor program. During that symposium a basic set of engine stock motor rules were established, which were implemented at the start of the 2015 season outlawing all big bore motors."

The motor program was, however, only one part of the equation. "Second we teamed with Hoosier Racing Tires and secured a tire program that is affordable and not a support tire. Within the Modified Lite division, other sanctioning bodies use plated tires to subsidize their programs, with the added costs being passed through directly to the racers. A support tire program costs the driver more than \$125 per tire, and a portion of that is turned over to the sanctioning body," Bauer explains.

That is not so with the Bilstein Modified Lite STARS Tour. "All of our regional directors and club presidents unanimously rejected that idea; they didn't like it that the drivers had to pay the extra fee on top of the cost of the tire. We were looking for an affordable and durable tire, which Hoosier Racing Tire has provided to us."

That program encompasses two tire options 205/60-13 and 215/60-13 soft, and 215/60-13 medium tire. With a \$100 retail cost to the driver it delivers a savings of \$25 for each tire. Hoosier provides the Modified Lite STARS Tour with four tires for each of the five national events, up to 20 tires total.

The final piece of the equation was to develop a shock. The STARS worked directly with Bilstein Shocks who have provided them with a small-body SG Series non-adjustable shock at an affordable cost.

"A turnkey race-ready car's cost varies based on the engine selection," Bauer notes. "But a new roller will vary from \$16,000 and up while a good used race ready car could start at \$8,000, depending on the time of year and the market. A complete race-ready engine from a reputable engine builder starts at \$3,800. However, with our rules and the 1,000cc stock motor

program, our racers can purchase stock motors for as little as \$1,500 put into the car and race. An example of that was with Alan Knepper who won at Bubba Raceway Park in Ocala (Florida) this past Florida Speedweeks with a motor that had nothing done to it."

The 2015 Start in Florida

A beautiful sunny February day at Bubba Raceway Park in Ocala, Florida, with temperatures in the mid 80s would greet the Mod Lite STARS group on their third and final night of racing at the Central Florida speed plant.

The competition between the drivers was very close, with everyone running the same motor package. With the new 1,000cc Mod Lite STARS rules in effect, it was evident that the full field of Mod Lites were more equal than ever. Some drivers were heard saying the driver who hit the setup and made the least mistakes would take home the win. That statement was true for Knepper who found that

sweet spot, winning Saturday night's 25-lap feature and repeating his performance with a second win Sunday night, fighting off Second Place finisher Joe Isabell and Third Place runner-up Corey Babbit.

It was that Sunday night 20-lap race that saw an example of the series working with their host track. On lap 19, with the white flag in the air, caution flew for a spinner coming off of Turn 4. Under track rules the field lined up single file and the green/white flags were flown on the restart. Knepper held his perfect line and was able to take the final lap, receiving the checkered flag and a cool \$500. In addition, Knepper took home an additional \$300, winning the overall Winter Nationals Points Championship.

A Racers View

"As a racer the class stays affordable," driver/owner Knepper says. "Because of only being allowed to run stock engines, it takes all the money out of putting it into the motor. You



It may be a $\frac{5}{8}$ scale car but the cockpit looks full sized to us.



A view of the front suspension shows the shock; the STARS series has a \$100 claim rule on each shock.



Quick-change rearends are the norm, although you occasionally see a 9-inch.



Willie Veach Jr.'s car is getting set to be scaled.




can usually buy a motor for \$2,500-\$3,000 complete. I ran a completely stock motor at Bubba Speedway for the Winter Dirt Games and was very competitive against 10 of the best brand of cars in the country."

Knepper says that the low cost of entry gets attention from other divisions. "The competition varies from Sprint Car and Late Model drivers looking for a more affordable class to race in to young drivers with very little experience."

He goes on to say that the scheduling varies from the weekly series at the local tracks to traveling to the tour races. There are two different sanctioning bodies to race in and they are very similar, as per there rules. Overall, they try to keep the rules the same to promote the series and make it grow, while trying to not schedule races in the same general area at the same time, or set up a race back to back in the same area with both series.

"The First Annual Winter Dirt Games, which races with the USAC Sprint Cars was a hit," Knepper says. "The car count was better than expected and if we can do a back-to-back weekend with the other series next winter, it will only continue to grow. If we can attract some more series sponsors, and pay out a better purse structure, mainly back through the field, the series should continue to grow."

The Mod Lite STARS Series seems to be a very credible organization of dedicated racers and officials. The tracks that support them seem to be more than happy with the outcomes of their investments and, best of all, the race fans seem very happy. As a support group to the USAC Sprint Cars, the early season Florida winter shows at both Bubba Raceway Park in Ocala and East Bay Raceway in Tampa were very successful, with full fields and great racing action.

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COMPILED BY **MATT PANURE**

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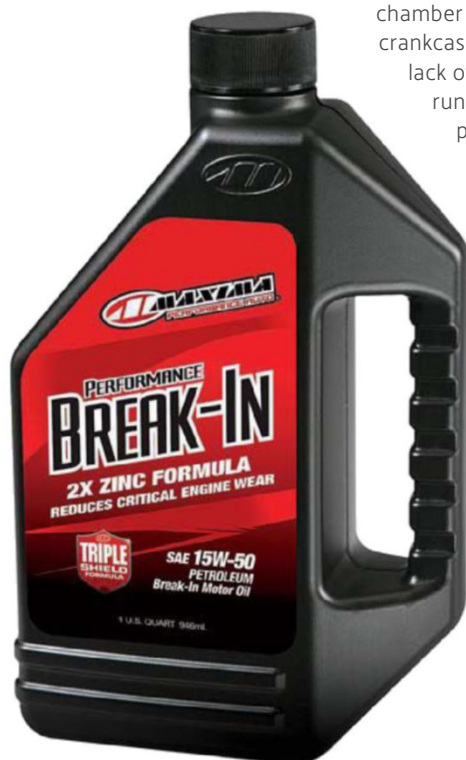
Performance Break-In Oil is for use in the break in of high-performance race engines, including Off-Road, Circle Track, Late Model, Drag Racing, and more. It is compatible with petroleum, semi-synthetic, and fully synthetic motor oils, and is ideal for use in race engines, OEM rebuilds, and crate motors. It is perfectly balanced and requires no other additives.

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Different widths and pinion offsets are available upon request.

The standard housing for the rearend assembly is set up for a GM Metric G-body rear suspension. Quick Performance also can build these 9-inch full-floating housings with brackets for GM A-body cars, leaf spring cars, and bare, with no brackets installed on the tubes. The housing piece is the standard "big web" piece. Quick Performance can customize (at an additional cost) to instead include the new fabricated "big web" piece that is not only stronger, but 9 pounds lighter.


This rearend assembly package comes with custom-built Quick Performance Ford 9-inch full floating housing and heavy-duty housing center piece (as mentioned) plus new laser-cut, jig-welded suspension brackets, a $\frac{3}{16}$ -inch walled 3-inch DOM axle tubing, and drain and fill plugs installed.

Control arm brackets and bushings are also

included and customizable. The upper control arm is equipped with the standard rubber bushing. At an upgrade the bushing can be replaced by a spherical monoball. Standard non-adjustable lower control arm brackets are equipped on the assembly. An upgrade to adjustable lower control arm brackets is available, as well. Spring cups are also included with an option for 5-inch racing springs or pigtail springs.

With the standard Quick Performance rearend assembly are two solid 31-spline floater axles. Two other options are available. There is the option at a slight price increase for a 28-spline floater axle. Another upgraded option exists for a gun-drilled 31-spline floater axle.

To complete the assembly Quick Performance includes two Grand National-style hub kits. The kits include $\frac{5}{8}$ -inch studs with two different bolt patterns to choose from. Bolt patterns available are 5x5 and 5x4.75. It also includes two vented rotors and a hardware kit composed of 10 center-secution studs with lock washers and nuts and two hub nuts with lock washers. At an upgrade calipers and weld-on caliper brackets are available, as well.

The standard assembly (without upgrades and add-ons) retails at \$850. It is available through the Quick Performance website. All options for upgrades and add-ons are available when purchasing the assembly through the their website. 



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July

17-18 Eldora Speedway;
Rossburg, OH

July 25 Wilmot Raceway; Wilmot, WI

July 26 Huset's Speedway;
Brandon, SD

July 29 West Liberty Raceway;
West Liberty, IA

Aug. 7-8 Federated Auto Parts Raceway
at I-55; Pevely, MO

Aug.

21-22 Butler Motor Speedway;
Quincy, MI

American Modified Series

www.americanmodifiedseries.com

July 18 Clarksville Speedway;
Clarksville, TN

American Canadian Tour (ACT)

www.acttour.com

July

18-19 Airborne Speedway;
Plattsburgh, NY

Aug. 08 Beech Ridge Motor Speedway;
Scarborough, ME

ARCA (Automobile Race Club of America)

www.arcaracing.com

July 17 Iowa Speedway; Newton, IA

July 24 Lucas Oil Raceway;
Brownsburg, IN

Aug. 1 Pocono Raceway;
Long Pond, PA

Aug. 8 Berlin Raceway; Marne, MI

American Sprint Car Series

www.ascsracing.com

July 17 Electric City Speedway;
Great Falls, MT

July 18 Billings Motorsport Park;
Billings, MT

July 22 Gillette Thunder Speedway;
Gillette, WY

July 24 Black Hills Speedway;
Rapid City, SD

Aug. 6-8 Knoxville Raceway;
Knoxville, IA

Badger Midget Auto Racing Association

www.bmara.com

July 19 Angell Park Speedway;
Sun Prairie, WI

Aug. 9 Angell Park Speedway;
Sun Prairie, WI

Big 8 Series

www.big8series.com

July 12 Slinger Super Speedway;
Slinger, WI

July 24 State Park Speedway;
Wausau, WI

Aug. 4 Wisconsin Int'l Raceway;
Kaukauna, WI

Buckeye Outlaw Sprint Series

www.buckeyesprints.com

July 11 Waynesfield Raceway Park;
Waynesfield, OH

July 31 Atomic Speedway; Alma, OH

Aug. 1 Lawrenceburg Speedway;
Lawrenceburg, IN

Aug. 2 Millstream Speedway;
Findlay, OH

Aug. 8 Wayne County Speedway;
Orrville, OH

Aug. 15 Fremont Speedway; Fremont,
OH, "Mike Hensel Memorial"

CARS Tour

www.carsracingtour.com

July 11 Motor Mile Speedway;
Radford, VA

Aug. 1 Orange County Speedway;
Rougemont, NC

Carolina Clash

www.carolinaclash.com

Aug. 1 Fayetteville Motor Speedway;
Fayetteville, NC

Aug. 8 Volunteer Speedway;
Bulls Gap, TN

Aug. 11 Carolina Speedway;
Gastonia, NC

Aug. 15 Smoky Mountain Speedway;
Maryville, TN

Champion Racing Association

www.cra-racing.com

July 18 Anderson Speedway;
Anderson, IN

July 24 Lucas Oil Raceway;
Brownsburg, IN

Aug. 12 Kalamazoo Speedway;
Kalamazoo, MI

Aug. 15 Flat Rock Speedway;
Flat Rock, MI

Empire Super Sprints

www.empiresupersprints.com

July 17 Albany Saratoga Speedway;
Malta, NY

Aug. 1 Stateline Speedway; Busti, NY

Aug. 2 Eriez Speedway; Erie, PA

Aug. 7 Ohsweken Speedway;
Ohsweken, Ontario, Canada

Aug. 8 Canandaigua Motorsports
Park; Canandaigua, NY

Aug. 14 Brewerton Speedway;
Brewerton, NY

Formula 1

www.formula1.com

July

24-26 Hungarian Grand Prix;
Budapest, Hungary

IndyCar Series

www.indycar.com

July 12 The Milwaukee Mile;
Milwaukee, WI

July 18 Iowa Speedway; Newton, IA

Aug. 2 Mid-Ohio Sports Car Course;
Lexington, OH

International Super Modified Association (ISMA)

www.ismasupers.com

July 11 Oswego Speedway;
Oswego, NY

July

24-25 Sandusky Speedway;
Sandusky, NY

Aug. 7 Lee USA Speedway; Lee, NH

Aug. 8 Waterford Speedbowl;
Waterford, CT

Lucas Oil Dirt Late Model Series

www.lucasdirt.com

July 10 Tri-City Speedway;
Granite City, IL

July 11 Lucas Oil Speedway;
Wheatland, MO

July 14 Lakeside Speedway;
Kansas City, KS

July

16-18 I-80 Speedway; Greenwood, NE

Aug. 6-8 Florence Speedway; Union, KY

Aug.

13-15 Batesville Motor Speedway;
Batesville, AR

Lucas Oil Midwest Late Model Racing Association

www.mlrracing.com

July 11 Lucas Oil Speedway;
Wheatland, MO

July

16-18 I-80 Speedway;
Greenwood, NE

Aug.

7-8 Junction Motor Speedway;
McCool Junction, NE

Modifieds of Mayhem

www.montgomerymotorspeedway.org

July 11 South Alabama Speedway;
Kinston, AL

Aug. 7 Five Flags Speedway;
Pensacola, FL

Aug. 8 **Mobile** Int'l Speedway;
Mobile, AL

Aug. 15 **Montgomery** Motor Speedway;
Montgomery, AL

Must See Racing Xtreme Sprint Series

www.mustseeracing.com

Aug. 8 **Anderson** Speedway;
Anderson, IN

Aug. 15 **Berlin** Raceway; Marne, MI

NASCAR Sprint Cup Series

www.nascar.com

July 11 **Kentucky** Speedway;
Sparta, KY

July 19 **New** Hampshire Motor
Speedway; Loudon, NH

July 26 **Indianapolis** Motor Speedway;
Speedway, IN

Aug. 2 **Pocono** Raceway;
Long Pond, PA

Aug. 9 **Watkins** Glen International;
Watkins Glen, NY

NASCAR Xfinity Series

www.nascar.com

July 10 **Kentucky** Speedway;
Sparta, KY

July 18 **New** Hampshire Motor
Speedway; Loudon, NH

July 25 **Indianapolis** Motor Speedway;
Speedway, IN

Aug. 1 **Iowa** Speedway; Newton, IA

Aug. 8 **Watkins** Glen International;
Watkins Glen, NY

NASCAR Camping World Truck Series

www.nascar.com

July 22 **Eldora** Speedway;
Rossburg, OH

Aug. 1 **Pocono** Raceway;
Long Pond, PA

Aug. 15 **Michigan** International
Speedway, Brooklyn, MI

NASCAR K&N Series East

hometracks.nascar.com

July 17 **New** Hampshire Motor
Speedway; Loudon, NH

July 31 **Iowa** Speedway; Newton, IA

Aug. 7 **Watkins** Glen International;
Watkins Glen, NY

Aug. 15 **Motordrome** Speedway;
Smithton, PA

NASCAR K&N Series West

hometracks.nascar.com

July 11 **Stateline** Speedway;
Post Falls, ID

July 30 **Iowa** Speedway; Newton, IA

Aug. 15 **Evergreen** Speedway;
Monroe, WA

NASCAR Whelan Modified Series

hometracks.nascar.com

July 17-18 **New** Hampshire Motor
Speedway; Loudon, NH

July 25 **Monadnock** Speedway;
Winchester, NH

Aug. 7 **Stafford** Motor Speedway;
Stafford Springs, CT

NASCAR Whelan Modified Series

hometracks.nascar.com

Aug. 1 **Bowman** Gray Stadium;
Winston-Salem, NC

POWRi Racing

www.powri.com

July 11 **Fairbury** American Legion
Speedway; Fairbury, IL

July 12 **Belle-Clair** Speedway;
Belleville, IL

July 24 **Tri-City** Speedway;
Haubstadt, IN

Aug. 1 **Tri-State** Speedway;
Haubstadt, IN

Aug. 2 **Belle-Clair** Speedway;
Belleville, IL

Aug. 7-8 **I-55** Raceway; Pevely, MO

Pro All Stars Series (PASS) Modifieds

www.proallstarseries.com

July 11 **Beech** Ridge Motor Speedway;
Scarborough, ME

Pro All Stars Series (PASS) Northern Super Late Models

www.proallstarseries.com

July 11 **Beech** Ridge Motor Speedway;
Scarborough, ME

July 19 **Airborne** Park Speedway;
Plattsburgh, NY

Aug. 8 **Autodrome** Montmagny;
Montmagny, QE, Canada

Pro All Stars Series (PASS) Southern Super Late Models

www.proallstarseries.com

July 25 **Caraway** Speedway;
Sophia, NC

Aug. 15 **South** Boston Speedway;
South Boston, VA

Pro All Stars Series (PASS) Southern Pro Late Models

www.proallstarseries.com

July 25 **Caraway** Speedway;
Sophia, NC

Southern United Professional Racing Series

www.suprracing.com

July 17-18 **I-30** Speedway; Bryant, AR

Aug. 7-8 **Battleground** Speedway;
Highlands, TX

USAC Silver Crown

www.usacracing.com

July 23 **Lucas** Oil Raceway at
Indianapolis; Brownsburg, IN

July 31 **Belleville** High Banks;
Belleville, KS

USAC Sprint Car

www.usacracing.com

July 10 **Gas** City I-69 Speedway;
Gas City, IN

July 11 **Kokomo** Speedway;
Kokomo, IN

July 12 **Lawrenceburg** Speedway;
Lawrenceburg, IN

July 15 **Terre** Haute Action Track; Terre

Haute, IN

July 16 **Lincoln** Park Speedway;
Putnamville, IN

July 17 **Bloomington**, IN;
Bloomington, IN

July 18 **Tri-State** Speedway;
Haubstadt, IN

Aug. 7 **AMSOIL** Speedway;
Superior, WI

Aug. 8 **Cedar** Lake Speedway;
New Richmond, WI

Aug. 9 **Angell** Park Speedway;
Sun Prairie, WI

Winged Outlaw Figure 8 Series (WOFs)

www.wofsracing.com

July 4 **Anderson** Speedway;
Anderson, IN

Aug. 2 **Galesburg** Speedway;
Galesburg, MI

World of Outlaws Sprint Cars

www.woosprint.com

July 11-12 **Cedar** Lake Speedway;
New Richmond, WI

July 15 **Limaland** Motorsports Park;
Lima, OH

July 17-18 **Eldora** Speedway;
Rossburg, OH

July 21 **Lernerville** Speedway;
Sarver, PA

July 24-25 **Williams** Grove Speedway;
Mechanicsburg, PA

July 26 **Lebanon** Valley Speedway;
West Lebanon, NY

July 28 **Ohsweken** Speedway;
Ohsweken, Ontario, Canada

July 31 **Brockville** Ontario Speedway;
Brockville, Ontario, Canada

Aug. 1 **Autodrome** Drummond;
Drummondville, QE, Canada

Aug. 7-8 **Federated** Auto Parts Raceway
at I-55; Pevely, MO

World of Outlaws Late Models

www.woolms.com

July 14 **Gillette** Thunder Speedway;
Gillette, WY

July 15 **Black** Hills Speedway;
Rapid City, SD

July 18 **Deer** Creek Speedway;
Spring Valley, MN

July 23 **Quincy** Raceways; Quincy, IL

July 24-25 **Fairbury** American Legion
Speedway; Fairbury, IL

July 28 **Shawano** Speedway;
Shawano, WI

July 30-Aug. 1 **Cedar** Lake Speedway; New
Richmond, WI

Aug. 14 **Potomac** Speedway; Budds
Creek, MD

Aug. 15 **Winchester** Speedway;
Winchester, VA



SHOW ME THE MONEY

BY ERNIE SAXTON

Make it Simple and **Find Success**

HOW MANY TIMES HAVE YOU HEARD THE KISS METHOD (KEEP IT SIMPLE STUPID)?

We have managed to make sponsorship too complicated. At least that is my thinking. I have received sponsorship proposals that contain far too many pages of information, and when that is received

by someone you are trying to sell on sponsorship, it is a turnoff. Some racers are spending (wasting) large sums of money in an effort to secure sponsorship, and it is not really necessary.

Rich Plinke, author of *From The Jaws Of The Dragon*, wrote in a recent edition of *Lehigh Valley Business*, some people throw a lot of hocus-pocus and razzle-dazzle at the potential sponsor, all well-disguised under a heap of opaque misdirection and distraction.

How many times have you heard the KISS method—Keep It Simple Stupid?

After many years in this business and having put together many, many elaborate proposals, I am now using the KISS method. Actually, I am using the simpler method to attract the interest of a potential sponsor. Then, based on a telephone discussion or live meeting, I create a serious proposal, still not as complex as they used to be.

All that time spent creating a proposal even before you have learned anything about the potential sponsor and his/her business is a waste of time and effort. That time could have and should have been spent researching the potential sponsor.

Plinke pointed out that while you should have been learning as much as you could about the potential sponsor in order to match a solution to the opportunity, many take the less demanding, but limited, kitchen-sink route. This results in information overload that can leave the prospective sponsor overwhelmed and confused.

The wrong message is being sent by the elaborate proposal, a message that basically says, "Here's everything I have. You do all the work, and figure it out."

The result is that you have probably lost the potential sponsor before you even had the opportunity to meet them, and learn what they needed in the way of a marketing partner.

So here is what I suggest if you are making initial contact with someone you feel could be a potential sponsor. This may be as a result of meeting someone at a show, a

social event, or whatever. You have chatted and exchanged business cards. You have told the person to expect your correspondence.

I am a big believer in sending something like this via the U.S. mail. There is so much email out there that often important material, such as your letter, could be lost in cyberspace.

An important first step is to make sure the person writing the letter has a command of the English language. If you do not, then please find someone to write your letter who does. Also, be sure you have some quality stationary. The folks at Staples or Office Depot can help you.


Now, create the letter. You want to make sure you remind them briefly why they are receiving the letter. Tell him/her that you enjoyed the conversation and you are following up with the promised information. You explain the outstanding marketing opportunity you have available; that would be your race car and race car hauler or the race event that you promote.

Include a brief explanation of your racing, one or two short paragraphs at most. Explain how being part of the marketing opportunity with your race team or event would gain the potential sponsor considerable exposure and drive traffic to their business. There are so many different ways that you can make this happen. Let them know the cost of their involvement is pretty much controlled by what they want to do and get out of the involvement. You can offer a variety of programs.

Finally, tell them you will give them a call in a few days to answer any questions they may have and to set up a meeting to discuss their interest.

The meeting is where you learn about the sponsor, their business, and how they market their business. Get an idea of what they are spending on marketing. Are they an area, regional, or national business? Let them do most of the talking and you do all the listening. Not much is learned if you do all the talking. Once the meeting is over, thank them for their time and set up an appointment for when you can return with the proposal. Make sure you allow yourself plenty of time to get the proposal together. You don't want to do a rush job on one that ends up being poorly done.

Now take what you have learned, do a little research on the business, and create your proposal. Usually you can give the potential sponsor all the information they need to make a decision in about four information-filled pages. In a future column I will tell you what should be in those pages.

A new edition of our *Motorsports Sponsorship Marketing News*, which has helped so many with their sponsorship efforts, is available FREE. Send your snail mail mailing address to esaxton144@aol.com to receive a copy. 

Versatility. Affordability. Performance.

Rate springs, bump stops, full coil-over set-ups

Digital Coil-Over Spring Tester & Compressor

Part # 110060

Accuracy: +/-0.25% of Applied Load

Capacity: 5,000lb (2,500kg)

**Rates Standard Coil Springs 2.5" (64mm) to 6"
(152mm) Diameter**

Rates Full Coil-Over Setups

**Compress Coil-Over Assemblies for Easy
Adjustments**

Increased Height of 31" (787mm) Eye-to-Eye

**10 5/8" (270mm) Jack Travel with 12"
(305mm) Digital Travel Indicator**



More Podium-Proven Spring & Shock Test Equipment



Coil Spring Tester

Part # 100061
2,000lb (1,000kg) Capacity

Part # 100059
5,000lb (2,500kg) Capacity

Pull Bar Rater Adapter

Part # 110064



Variable Speed 3HP Shock Dynamometers

High Speed

Part # 102092
28" Masts

Part # 102092-40
40" Masts

Part # 102093
28" Masts

Part # 102093-40
40" Masts



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Computer Scales



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\$999.95

LON72593 Accuset II **\$999.95**
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 LON72609 DXI Professional **\$1350.00**



- Chevy
- Ford
- Double Pass

Widths:
 22 - 24 - 26 - 27 - 31

Starting at **\$159.95**



Cordless Impact Gun Kit

Includes:
 Impact Gun
 Charger
 2 Batteries
 Case

\$269.95

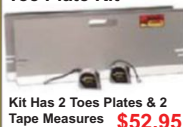


Bump Steer Gauge



\$234.95

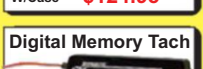
Toe Plate Kit



Kit Has 2 Toes Plates & 2 Tape Measures **\$52.95**

Caster Camber Gauge

Magnetic
 Complete W/Case **\$124.95**



Digital Memory Tach



\$184.95



Memory Tach **\$159.95**



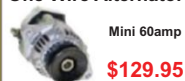
\$159.95

Super Torque Starter



Dual GM Pattern
 2 HP **\$129.95**
 3 HP **\$139.95**

One Wire Alternator



Mini 60amp **\$129.95**

Chevy Alternator & Bracket Kits



\$239.95

Accutech Gauges



Starting at **\$29.95**



\$64.95



Brake Fluid
 Starting at **\$9.95**

Fan Shrouds

19" High
 26", 27.5" or
 31" Radiator

\$72.95



Steel Fans

15" 17"
 18" 19"

Starting At **\$32.95**



Heat Sleeved Ignition Wire Sets

- 8mm Super Wires
- Red Silicone Heat Sleeves
- Straight or 90° Numbered Plug Ends
- HEI Style-Under Header or Over Valve Cover

\$99.95



Race Ready HEI



50,000 Volt Coil
 Racing Module
 Advance Lockout Included
\$129.95

MOROSO Durafire HEI



Performs To 8000 RPM
\$239.95

Race Ready Unit

Hydraulic Bearings



Stock Type **\$149.95**
 Multi Disc **\$139.95**

Chevy Clutch Kits



Heavy Duty **\$199.95**
 10,000 RPM Lightweight **\$799.95**

AERO RACE WHEELS



Starting at **\$63.95**

Brake Pads



GM Axle Sets
 Starting at **\$68.95/set**

Super Safety Kit

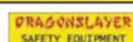
Your Choice of Size & Color

One or Two Piece S-3X Suit
 Single Layer Gloves
 Neck Brace Hi-Top Shoes

Head to Toe Kit

Super Safety Kit Above with
 SA2005 Full Face White Helmet

Driving Suits **\$109.95** **\$119.95**
 1 piece S-3X 2 piece S-3X



Starting at

\$239.95

Starting at

\$499.95



Suits are Manufactured with SFI Approved Fire Retardant Single Layer Cotton with Nomex Cuffs. Available in Red, Black or Blue With White Chest Panel. Use Chart Measurements for Sizing.

SA2010 Helmets

Starting at **\$269.95**



5 Point Individual System

SFI Approved
\$69.95
 Red, Black, Blue, Yellow, Orange, Purple, Gray



9" Ford Center Section

Plastic Gear Tote Included
 Starting At **\$489.95**



500 CFM Holley Oval Track Carb

\$399.95



9" Ford Ring & Pinion

\$139.95
 Ratios Available

3.50	3.70	3.89	4.11
4.30	4.56	4.71	4.86
5.00	5.14	5.43	5.67
5.83	6.00	6.20	6.50



Fuel Filter Kit

\$39.95
 Element **\$6.95**



9" Ford Steel Spools

Starting At **\$99.95**



Quick Change Gears



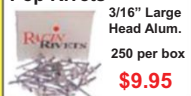
\$72.95

Air Pop Rivet Gun



\$69.95

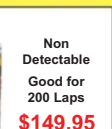
Pop Rivets



3/16" Large Head Alum.
 250 per box **\$9.95**

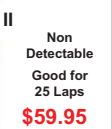
Hot Lap

Non Detectable
 Good for 200 Laps
\$149.95



Hot Lap II

Non Detectable
 Good for 25 Laps
\$59.95



Economy Containment Seat

Widths 13", 14", 15", 16", 17"
 Seat with Cover **\$499.95**



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